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# SCANNINGS OF BEE CULTURE

A JOURNAL  
DEVOTED  
TO BEES,  
AND HONEY,  
AND HOME  
INTERESTS.

ILLUSTRATED  
SEMI-MONTHLY

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No. 4

## STRAY STRAWS FROM DR. C. C. MILLER.

TRY HONEY in your hot drinks. Costs more, but it's more wholesome. I use it in coffee.

I DON'T KNOW whether I can fully answer F. Greiner's question why bees gnaw the cappings of sections in one case and not in another; but I know one thing that probably he knows, that blood makes a big difference. Black bees are ever so much worse than Italians.

W. K. MORRISON is one of the men who have faith in *Apis dorsata*; but he believes in common sense, and says, in *American Bee Journal*, "Many will agree with Dr. Miller when he suggests that those who go after new races try them on their own ground, for it is common sense."

FOR PERMANENCY of honey sales, give more attention to consumption of honey by children. It's said you can't make honey a staple—people tire of it. I doubt if that's true as applied to children. Let them have it constantly *ad libitum* from childhood, and they never seem to tire of it—at least some of them.

T. P. ANDREWS says I've omitted from the list of defunct bee-journals *The Bee-keepers' Journal*, published by H. A. King & Co., from about 1870 to 1873, when the *Bee-keepers' Magazine* took its place. Practically it was only a change in name, but it should add about three years to the life-lease of the *Magazine*.

THAT BIG CAVE of bees with tons of honey has again been discovered, with a stream of bees like a tar rope two feet in diameter. This time it's in the mountains of Pennsylvania, and the only way to get at it is to blow up the mountain-side with dynamite. The truthful narrator in the present case is the *Philadelphia Times*.

IF F. L. THOMPSON will look far enough back on his files, I think he'll find that I told the very thing he asks for, on p. 81. I've sent honey in a trunk to his State, done up in a paper

just like sugar. Simply turn the crock or barrel of honey on its side and let it drain days enough. But it won't work with all kinds of honey.

FRIEND GETAZ, I'm not so sure that your theory, p. 89, that old queens encourage paralysis, is correct. I'm a honey-producer, and have had lots of old queens and many cases of paralysis, but it never amounted to any thing except in one case. Did you ever hear of its being bad in the North? It's you southern fellows that catch it.

IF HALF THE EFFORT that has been expended in securing additional yellow bands had been made to secure longer tongues, it is possible that we might be now selling crops of red-clover honey. [I am glad to see that the craze for yellow bands has very perceptibly declined. Perhaps we can now begin to turn our thoughts toward securing bees for business.—ED.]

HONEY-CARAMELS may be the thing, friend Thompson, that you are groping after on p. 82. They cost less than capsules, and are not so suggestive of medicine. [Dr. Miller sent us a sample of honey-caramels that were just delicious. I believe the recipe originated in his own family; at all events, it is given in the honey-leaflet now for sale, and mentioned in another column.—ED.]

TALL SECTIONS require more foundation to fill them, says C. Davenport, p. 85. With the same thickness of comb, I don't see why an oblong section should take any more foundation than a square one of the same weight. [With the same thickness of comb, no more foundation would be required; but the tall sections contemplate thinner combs, and, of course, that would mean more foundation.—ED.]

IF BUCKWHEAT HONEY has twice as much formic acid as clover, then foul brood ought not to be so bad with buckwheat. Wonder if there's any difference in fact. [If formic acid is going to do any thing toward curing or keeping down foul brood, there will, perhaps, be less of that disease where there are large quantities of buckwheat honey produced. But why should

there be more formic acid in buckwheat? Perhaps it requires more of it as a preservative, for indeed this acid is a strong antiseptic.—*Ed.*]

THAT NEW SPELLING on page 77 so "astonish't" the Medina printers that it "knockt" 'em clean out. They got that straw badly "mixt," and the last two lines of the page have "swapt" places. [The "swap" was discovered in our office after it was too late to swap back again. As the lines now stand they make Dr. Miller say just what he did not want to say; yet I hope most of our readers were able to recognize the discrepancy.—*Ed.*]

A FORMER EDITOR—one who had snap too—writes that in the list of defunct bee-journals I ought to have included some that are dead but still appear regularly. Perhaps he thinks it might be said of them as was said by the Irishman of the turtle which walked around long after its head had been cut off: "The crayture's dead, but it's not sinsible of it." [Yes, perhaps there are one or two that might very properly be classed as dead so far as any influence or effect they have upon general bee-keeping is concerned. But, say—if you had mentioned their names, I rather imagine you would have found they had a spark of life left.—*Ed.*]

I'M WONDERING what sort of Miller feeder Wm. G. Hewes has when he says, on page 84, "Unless it fits the super very snugly, many bees will be drowned." What's a super on the hive for? and how do the bees get in the feed? There's no possibility of my bees getting drowned unless they get under the cover from the outside. How is it in Medina, Mr. Editor? [No trouble about bees drowning in the Miller feeder, at our yard. In fact, it is absolutely impossible for the bees to get at the feed except through the narrow passageways; and in them the bees can not by any possibility be drowned. Perhaps friend Hewes did not use them in closed supers.—*Ed.*]

I'VE BEEN USING frames with top-bars  $\frac{1}{4}$  inch short at each end, like those on p. 94, and I think it's a fine improvement. I've been using that gauge on p. 95 for two years, and like it. But I like the end-spacer I sent you better, I think, Mr. Editor, than staples. [Yes, indeed. For the last two years a number of letters have passed between Dr. Miller and ourselves regarding the advantages of having a bee-space around the ends of the top-bars; and his experience has been exactly our own; namely, that it is indeed a "fine improvement." But until this year we did not decide to list it in our regular hive combinations. The "end spacer that Dr. Miller refers to is simply a wire nail driven through the end of the projection of the top-bar from the top, diagonally, into the end-bar. This feature will be illustrated a little later on; but it seems that friend Boom-

hower has been using this device for a number of years. For further particulars see editorials.—*Ed.*

"IN EXAMINING sections in their various stages of progress we invariably find them on both sides alike, drawn out and filled, or so nearly alike that a swinging one way or the other, by greater weight on one side, could not be caused."—*G. C. Greiner, page 86.* Friend G., it must be you never have weak colonies or poor harvests. I've had lots of sections fastened to separators by lop-sided building. But since using bottom starters I've no trouble. [Dr. Miller uses square sections. In fact, I believe he always has used them; so the trouble with comb being fastened to the separators would be little if any worse with tall than with square ones. Dr. Miller very truly says, a bottom starter would remedy that. See Doolittle's article in current number.—*Ed.*]

HOW TO BAKE honey-jumbles is inquired about by "Texas." We bake 'em just like cookies. Mix together the honey, molasses, and lard. Add the salt. Dissolve the soda in the water, and stir thoroughly into the mixture. Add the vanilla. Stir into the mixture a part of the flour, reserving the rest to roll out with. Roll about half an inch thick, and cut out with a doughnut or jumble cutter, which leaves a hole in the center. Grease the pans before putting in the jumbles, and bake in a medium oven. [The complaint at our house in regard to making jumbles is that the dough is rather too sticky to handle easily; still, the women-folks around Medina seem to make quite a success of the jumbles. Every once in a while an employee will lay upon my desk samples of his wife's make, and they are all good. This goes to show that the recipe is a success, and that any good cook can make good jumbles. The home-made will be better than the bakers', because, as a rule, a finer article of honey will be used.—*Ed.*]

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I have a great deal of faith in the bee-sting cure for rheumatism, having suffered a number of years, and since I have kept bees it has disappeared. Whether the stings did it, or whether eating honey did it, I can not prove; but I am inclined to give the bees the credit.

Ottawa, Ont., Jan. 11.

J. FIXTER.

#### WOOD SPLINTS FOR FRAMES OF FOUNDATION.

GLEANINGS for Nov. 15th reached me here. Referring to your editorial comments, that wiring would be more expeditious than setting of foundation with wood splints, I would state that about 120 frames per hour can be easily filled by experienced hands ready for the bees to begin work upon, using 7 splints per frame, which is a sufficient number of splints for medium brood foundation.

B. F. AVERILL.

Middletown, Mass., Jan. 1.



By R. C. Aikin.

## ALFALFA HONEY; ITS CHARACTER; TENDENCY TO GRANULATE.

The quality of this honey is very good. My experience is that it is fully the equal of white clover in respect to color, though some from other States or elsewhere report it as amber in color. Possibly soil or other conditions have to do with color; but my opinion is that the great bulk of it is white. In body, it is very heavy. It frequently becomes so very thick and tenacious that it can not be successfully extracted unless at a temperature of nearly 90 degrees F. In flavor it is quite mild. There is an entire absence of that sharp twang peculiar to white clover. Many people who could not eat honey in the East are very fond of alfalfa, and eat it with no evil effects. It is a rare thing to find one who dislikes the alfalfa flavor if he likes honey at all, and very many will eat it who would not eat other honeys.

Now, while the body, color, and flavor are excellent, there is one feature that is against it; and that is its tendency to granulate. Alfalfa comb honey, as a rule, will not keep over winter without granulating to some extent, both in brood-combs and sections. Let me say right here that I anticipate a thumping from some of the alfalfa-producers; but, thumping or no thumping, I want to tell the truth. If telling this truth about it will injure its reputation, it will have to bear it; but the fact remains that its good qualities will find it a market in spite of the one failing.

Extracted honey will candy solid in ten days to six weeks from extracting. With me it does this *every time*. This candying is a more serious question when extracting than if comb is produced. If the last extracting be a month later than the first, the first will be solid in tanks, cans, or whatever in, before we have time to get it in shape to retail. Wherever a bit of the honey stands for two or three weeks it *must be heated to get it out*. This question has become so serious with some of us that we think of adopting altogether different methods from those now in vogue in the matter of marketing extracted honey. The marketing question I will handle by itself, so drop it here.

## OTHER HONEY-PLANTS.

The noted Rocky Mountain bee-plant (cleome) grows quite freely in some parts of the State. This plant is a great favorite with the bees, and, like the sweet clover, will be covered with

bees. Several times I have had occasion to photograph it, but it seemed that the bees could not be kept off long enough to let it become still. This plant is quite peculiar in some of its habits. It seems to prefer a dry soil, often growing on gravelly, barren-like places that grow little else. While it will grow luxuriantly on good soil, it evidently will not thrive with "wet feet." It is strictly an annual, growing two to six feet high. When crowded together, plants usually attain an average height of two to three feet; but if not crowded they grow four to six feet, and spread their branches to a diameter of three to four feet. Like nearly every other plant that succeeds in dry soils, it has the characteristic long tap root. The bloom is a pinkish purple, and a very pretty one.

The cleome honey is just enough amber that it can not be strictly called a white honey. The flavor is a little bit rank at first; but when well cured it becomes rather mild and not unpleasant. In flavor I would class it with heart's-ease, and in color a little whiter than heart's-ease.

## SWEET CLOVER.

This plant is so well known that it needs no detailed description. It also has the penetrating root, grows on almost any soil, and yields a good grade of semi-white honey. The plant has been said to prefer a dry soil. In Colorado it grows well along ditch-banks, on bottom lands, and near the margin of swamps. I should say it favors a rich, moist, but well-drained soil. I say it grows on ditch-banks, and so it does. The Easterner would associate a ditch with a swampy, heavy wet land. In this country a ditch is rarely built for drainage purposes in soggy land, but through high, dry, rich farm land, to convey water to irrigate growing crops. The soil is rather clayey, and, though the ditch have a continual running stream, the water does not "percolate" (seep or waste through the soil) sufficiently to keep alive a shallow-rooted plant a distance of one rod from the ditch. Our ditch-bank, then, means a well-watered, well-drained soil; and in such, sweet clover thrives.

I have no other honey-sources that give a surplus except sometimes red clover. The red-clover honey is almost an amber, and has the decided clover twang. I would class it as first grade, but at the bottom of the grade.

We have a weed that I think is peculiar to the West, and of which I can not recall the botanical name. It has the sunflower form of bloom, about one inch in diameter, and yellow. The plant grows about one to three feet high, and blooms in August and September. It is called here resin-weed, because the leaves and branches have a glossy, gummy surface. It yields much pollen and a little honey. The honey has a golden tint and somewhat rank flavor, though not bad, and candies very quick-

ly. One of our apiarists, speaking of it, said, "When the bee works on the resin-weed it hies itself home quickly to unload before the honey candies in its sac."

#### CONDITIONS UNDER WHICH THESE PLANTS YIELD HONEY.

There seems to be something in weather conditions that none of us understand, that seems to stop all secretion of nectar when we would expect it to be otherwise. Such times we seem to have right conditions, yet no secretion takes place. This I can not at all explain. Aside from this I will speak only briefly of conditions. I find alfalfa yielding well in steady settled warm weather, preceding thunder storms, and right through *local* thunder-showers; but immediately following a *general* storm the secretion is very light. Cleome yields best early in the morning, and when the weather is slightly cool and damp. Work begins much earlier in the morning on cleome than on alfalfa, and ceases earlier in the day. This would indicate that heat is necessary for alfalfa, and cool weather for cleome. Sweet clover seems to be less affected by either heat or cold, though I am inclined to believe that it does best with a good degree of moisture. I know bees will work it in damp heavy weather. Sweet clover, I think, is not worked so early in the morning as cleome, the latter being worked promptly as soon as the bees can get out in the morning. There is one thing that I have observed for many years—that bees are eager for pollen in the morning. There is considerable primrose in my neighborhood, and the bees will rush for that in the very early morn, and come in with great trailing loads of pollen. Corn is also visited in the early morn. I do not know whether or not it is a provision of nature that the pollen-bearing plants should yield in the morning more than at any other time, but I do know that more pollen is gathered in the early part of the day.

The past two years have been very poor honey seasons in Colorado. Both years we had a good bloom. I thought each season that the prospect was good for a crop of honey, yet it seems there have not been poorer years since the country was settled. The year 1895 was what is called there a wet one. A wet year means one in which there is almost sufficient rain to grow crops without irrigation. Neighbors continually asked if the bees were doing well. I would reply they were not. Why? What is the matter? Is it too wet? Then 1896 was dry and hot—not unusually dry, but unusually hot. For Colorado there was a reasonable amount of rain, but a shortage of snow in the mountains to supply irrigating-water, hence many farms suffered for water, while others had a plenty. Again, the people would ask the same question, only this time it was "too dry" instead of too wet. There is yet that some-

thing which we do not understand that causes the bloom to secrete or withhold its nectar. I believe that good growing conditions are necessary in all cases, but I can not get rid of the thought that electricity has much to do with it.

#### OBSERVATION AND EXPERIMENTS.

I wish there could be a concerted action on the part of a number of stations throughout the United States, each station to keep a daily record of barometer, thermometer, precipitation, clear or cloudy, whether storms are local or general, both general and particular weather conditions throughout the year; and at all times during the honey-flows, or when there ought to be flows, have two or more colonies on the scales, and a daily record of gain or loss. I say two or more colonies, because I am satisfied that, when there are different *kinds* and *fields* of bloom at the same time, bees of different colonies will be working in different fields. I believe this because certain colonies will rob at certain places, and other colonies in the same yard not know where the honey is, or even find it at all. I believe there is some sort of manner of communicating or imparting the whereabouts of sweets, and one colony may get started in one field and another in another field; then if the one on the scales should be on a certain field that is cut down, there would be an interruption in the work of that colony that would not appear in another. If we are to get at the truth promptly and definitely, we must do both comprehensive and detail work.

I believe that soil has some influence on the secretion. It may be that certain plants must have certain elements in the soil that are peculiar to their health and growth in order that they may yield well. As before explained in these articles, there is a great diversity of soils and climate in Colorado. Loveland is in the Big Thompson Valley. Fort Collins is in the Poudre Valley. These places are only about 15 miles apart, yet there is considerable difference in the soils. Each valley is watered by the stream of the valley. My observation for the past seven years is that the honey-flows in the Poudre Valley have been better than in the Thompson Valley. The climate is the same, for it is an open country, and very similar in nearly all respects.

Now as to some method of getting these observations accomplished. I do not know how we can do it; but I have no faith in government work, because there is too much patronage to get the proper persons to do the work. If the government does undertake it, it takes a long time to get the thing a going, and we lose interest before it is accomplished. We must wait and work for appropriations. After the work is done we must wait for all the red-tape business before it is reported. I am not attacking the government, nor saying that it is not able to do such work. It is able, and should do

it; but there is too much of the "party" and "spoils" element to get what we want. I am sure that many bee-keepers throughout the country would gladly do the work if they were furnished with the facilities. Many are now doing just such work on their "own hook;" but the good results are lost by not having the work complete and systematized, and because there is no way to get the results together and compared, etc.

I have brought up this subject now that perhaps the fraternity may get together in some way the coming season in some thorough observations in regard to the pursuit. I must say that apiarists are not organized as they should be; that our product is practically turned loose to get to the consumer in a haphazard manner. Comb honey is much better marketed than the extracted, but there is need of reform in both. I propose, however, to discuss this matter later, so leave it here.

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#### PRINCIPLES OF HONEY-CONSUMPTION; POSSIBLE APPLICATIONS.

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##### ONE-OUNCE HONEY-PACKAGES.

By F. L. Thompson.

Communications to the bee-papers on selling honey are apt to be misleading on this point. They always tell how people who at first said, "I don't like honey," after being persuaded to take some of a first-class quality changed their minds, and ever afterward liked it very much, and bought in quantities. This is no doubt true so far as it goes. But there are plenty of people who quickly get tired of the very finest honey, when they try to eat it according to the mistaken notion that it is always a staple food. Why not recognize this truth? One woman, after several times buying my best honey, both comb and extracted, said she would not want any more that winter, as her family had become tired of it, and preferred maple syrup on their buckwheat cakes. I couldn't blame her, for I prefer maple syrup myself for that purpose. The truth is, there is a large class of people to whom honey is a radically different article of food from syrup, and can not possibly be eaten in the same way and with the same relish. People who belong to the other class, those whose palates and stomachs accept honey as a superfine syrup, to be consumed in like quantities, will be surprised at this assertion, and think there is something wrong about it. But in this matter they should not judge others by their own experience. Articles by "Novice" on pages 92 and 300 of *GLEANINGS* for 1895 recognize the true state of affairs. *De gustibus non est disputandum.*

What applies to private tables applies also to hotels and restaurants. But in applying small individual portions as a remedy, we are met

with a difficulty, though not an insuperable one. There is no satisfactory package at present available. It must be quite cheap, for the quantity of honey is small; it must not be expected to be returned for refilling, for I am informed that restaurant people are such a careless set as to put this out of the question; hence it must be of a kind that can be discarded after getting the honey out. Glass is too expensive. Perhaps hardened paper would do. Or possibly a special size and shape of gelatine capsules (of course, not to put in the mouth, but simply as a package) could be ordered from manufacturing chemists. They would show off the honey nearly as well as glass. Why should not some of the supply firms take hold of this thing and keep such packages in stock? The first step is the hardest. Many bee-keepers, who would be deterred by the bother of a special order, might try this if a suitable package were within easy reach. Besides, it would thus be cheaper.

Supposing we had a suitable package, holding, say, an ounce, selling at 25 cents a dozen (retailing at three cents, or two for five), what would be the advantages of selling honey in this way? It would do away with the surfeiting evil. It would give the customer a good taste, and make him want another next time. The adhesiveness of honey would not get a chance to assert itself in the minds of the powers that settle whether honey shall or shall not be consumed, for when once presented in small portions it is pretty sure to be eaten. The dish-washer would not get mad, nor the proprietor grumble at the added labor which side dishes usually impose. It would also put honey in the right shape to be sold to those groceries that locate opposite schoolhouses, and in general would make it a valuable addition to lunches.

By being made square inside, and as wide at the mouth as in the body, the package would also do for comb honey. The bee-keeper, for 30 cents or more a pound net, could well afford to use shallow frames instead of sections, cut up the comb with a square tin plug-cutter, and put the pieces into his paper jars or capsules—certainly much easier to do than to prepare five-cent sections, as was talked of some time ago. This plan would also be the most satisfactory solution of the unfinished-section problem, for the greater portion of the honey (by weight) in such sections is finished, and as good as any to take plugs out of. It would also be a good way to use up all partially defective section honey, thus raising the grade of what remains.

But suppose these inducements did not exist: there is another cogent reason for working up this kind of trade in connection with the ordinary methods. It would be the best kind of advertisement. In this way we could bring

honey to the favorable notice of hundreds of people who otherwise would never wake up to the fact that honey is cheap and enjoyable. Even if the plan did not pay in itself, it would pay in that way. Nor is this an untried theory. In the *Review* I have already written, or will write, of confirmatory evidence, and will repeat it here more in detail. In *L'Apiculteur* for July, 1896, page 278, appeared this paragraph: "The sale of honey in little flasks, for individual portions of 30 to 35 grammes, is increasing. These flasks, for restaurants, are sold for 15 centimes, by the firm of Salmon, 8 Rue de Acacias, Paris. There are also flasks for double individual portions, which contain 60 to 65 grammes, of which the price is 25 centimes. It is a new kind of trade, which aids in spreading the use of honey; it would be a mistake to neglect it." In the *Bienenvater* for November, 1896, appeared this paragraph: "Herr B., in P., formerly lived in a Moravian village, where a disposal of his honey was scarcely to be thought of; the peasants were poor, and strangers and summer guests did not look up the barren region. But the place was the breakfast and dinner station of a railroad. Herr B. made arrangements with the proprietor of the restaurant to place his honey-glasses on the counter for a small recompense. For 10 or 20 kreuzers [5 or 10 cents] the travelers received a little glass of honey and a roll; the glass was wrapped in paper containing brief information about honey, with the address of the producer. The business was a brilliant success; he no longer had to concern himself about disposing of his honey elsewhere, and many of his chance customers became lasting ones."

I am strongly of the opinion that individual portions should be confined to comb honey alone. If once this thing were started with extracted honey, the gates would be opened to the swindlers to crowd in with imitations, and ruin the trade. But with comb honey we are sure of no competition except from other people's pure honey, which is what we want, for the extension of honey-consumption means money in our own pockets in the future. If the customer prefers liquid honey, a slight manipulation with the spoon, which suggests itself to any one, will enable him to secure the greater portion in a liquid form. This is easier done with a small chunk of honey in a special vessel than when it is lying on a plate.

I have not tried this, having no honey to do it with this year; but I am so impressed with the principles involved that I conclude to lay it before the readers of this journal, in the hope that the idea will provoke comment, and, if necessary, criticism. I never did believe in that apicultural pantry which plumes itself on such sayings as "facts, not fancies," and "cackle when the egg is laid and you have seen

it," forgetting that all business facts were fancies at one time.

It is worth while considering whether it is enough to merely put our honey on the market, and let the commission men and grocers do the rest. They are not interested in it as we are. It is also worth while considering whether it will pay to waste much energy in boosting those uses of honey which are plainly subject to competition from other quarters, such as in cooking and in medicine. Honey in its own field is entirely distinctive and unique, and can have no competition. Though this field is quite limited in comparison with other foods, it is a question whether the general recognition of honey for just what it is would not be equivalent to a demand far greater than the supply. In order to attain this end, it would seem to be desirable to make a study of the underlying principles of honey-consumption, and work accordingly.

Denver, Col.

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#### COUNTING THE VOTE.

W. D. FRENCH'S REPLY.

*Mr. Editor*:—Referring to comments on page 60 in *GLEANINGS*, you say:—"I shall be very greatly surprised if the proposed scheme for amalgamation carries; and, moreover, one of the men whom he (Newman) has recommended to count the votes, has, in the *Progressive Bee-keeper*, criticised most severely the *American Bee Journal*. Such a person can hardly be impartial. I have nothing against Mr. French. Outside of his very apparent prejudice he would be as good as any man to count the votes and certify the results to the General Manager; but it certainly would have looked very much better, in view of the position that Mr. French will occupy, if he had kept still."

Now, *Mr. Editor*, I am sure you do not intend to cast insinuations or reflections upon the honesty of this count, or infer from my position as taken in the *Progressive Bee-keeper* that I would not be impartial in counting the votes for the Union. Such a proposition on your part would be wholly conjectural, and without foundation. I never sought the appointment on the returning board, though, inasmuch as it came to me, I shall do my duty properly, without regard to my own convictions, or those of any other member of the Union. Every man has a perfect right to discuss all questions vital to his interests, morally and constitutionally. Though no one need fear the honesty of the count, or sling baseless insinuations into the eyes of the returning board.

National City, Cal., Jan. 28.

[I still think, in view of the position you will occupy, or have occupied, perhaps, by this time, if you had said nothing either pro or con it would have looked better. I am glad you

are not prejudiced, and believe you when you say it. If the result is against my way of thinking, I shall not accuse you or any one else of unfairness. To do otherwise would be equivalent to saying, "If you can't play *my* way I won't play at all.—ED.]

### LOCKING HORNS.

DOOLITTLE SQUARES UP TO DR. MILLER; COMBS BEING BUILT TO SEPARATORS; CAUSES, AND HOW TO PREVENT.

By G. M. Doolittle.

On page 884 of GLEANINGS for 1896 I find this: "It would be fun to see Dr. Miller and Doolittle lock horns. GLEANINGS will furnish the arena." I have kept away from that "arena" ever since, in hopes that Ernest would ask the good doctor if he had "horns." Should that question be asked Dr. M., I should expect the answer to be, "I don't know." And if Dr. M. don't know whether he has "horns" or not, I suspect he has none, and I don't wish to be in an arena with any one trying to lock horns with him, when he has no horns. Dr. Gallup used to tell how he and a schoolboy mate used to hold the old cat by turns while the other hit him between the eyes to see what effect it would have on the cat; so perhaps it will do no harm for me to hit Dr. Miller a clip between the eyes to see what effect it will have, horns or no horns.

Now, doctor, "right face!" Did you have many combs built at their lower edges to the separators when you were using the  $4\frac{1}{4} \times 4\frac{1}{4} \times 2$ -inch sections prior to the time you studied out your "bottom starters"? Tell us; did not the trouble with swinging foundation begin when you reduced those sections to seven or eight to the foot, instead of when you were using six to the foot? If it did not, then you are an exception to the general rule. Now, doctor, we'll give you time enough to turn your gaze toward F. A. Salisbury, on page 17 of GLEANINGS for 1897. Don't you see that, in order to keep the tall sections down to where they will weigh a little less than one pound (so that the grocery-men may be able to buy our product at pound figures, and sell it at section figures), brother S. cut his sections down to  $1\frac{1}{2}$  inches in width, instead of allowing two inches, as is the case of the square section? Yes, you see that. Well, now suppose that Bro. S. had kept his tall sections at 2 inches, and cut his square ones down to  $1\frac{1}{2}$  inches, do you suppose he would be telling us how the foundation in the tall sections was bound to get attached to the separators, while that in the square sections behaved itself like a "little man"? Ah! you begin to see it, do you? Well, suppose he cut those square sections down to  $\frac{3}{4}$  of an inch (about the smallest space in which bees will draw out foundation at all), so that he had only about  $\frac{1}{2}$  of an inch between the foundation on

either side and the separators, how many sections do you suppose he would have that were perfect, without brace-combs? Twenty-five per cent? Now I am ready to admit that, as any (width of) section increases in height, the liability of brace-combs at the bottom increases, where foundation is used, as it would be hard work to keep the foundation true in a two-inch-wide section—if the same were a foot high, in any event; but I do claim that the reduction in width of section has more to do with the brace-comb nuisance than all else combined (up to the present time), except not seeing that hives are level, and slip-shod putting in of foundation.

Now, doctor, "right face" again. What is the trouble with you and Salisbury, that your bees are determined to draw out one side of the foundation before they do the other, thus curling it, and this curling causing it to be fastened to the separator? There can be only two things, that I know of, which will cause this. First, too weak colonies to work in the sections to the best advantage, and, second, putting on too much surplus room at once. Is the first the trouble with you? Oh! I see the effect. You're shouting back, "No, sir, 'ee!" Well, I judge you are right in this, generally. But how about the other? Do you not know that the veteran bee-keeper, Mr. Manum, who always produces a fancy article of honey, which sells at top prices, as a rule puts on only from one-fourth to one-half the amount of surplus room at one time that you and Salisbury do? In this way, as soon as the sections are on the hive every section is filled completely with bees; and if any foundation is drawn out the whole is so drawn, and thus the foundation has no chance to curl. Do you see? "Oh, yes!" I hear you say, "that is one of your old hobbies; but there is too much work to that." Will you tell us which is the more work—doing as Manum does, or putting that extra starter in each section? For me I prefer the Manum plan.

Now, doctor, I am going to let you look off again. Just you look at Bro. Pettit, on page 51, GLEANINGS for 1897. Do you see how he runs the bees up, with their loads of honey, on the other side of the sections (from the center) and thus overcomes your difficulty and Salisbury's? Well, what do you think of that? Don't you know that Doolittle, after days and weeks of watching with his one-comb observatory hive, told the world that he never saw one single bee go with its load of honey as it came in from the fields, up to the surplus-arrangement, but that all gave their loads to younger bees before any reached as great a height as the middle of the brood-comb? Then you also remember how at a certain point, after you had changed queens, giving an Italian queen in the place of a black one, that you saw only black bees going in and out at the entrance, when

honey was coming in, while a look at the surplus showed very few but Italian bees at work there; this also showing that no field-worker ever deposits its load of nectar in the cells in the surplus-apartment. Yes, you are familiar with that. Well, how do you account for Bro. Pettit's success? What! "don't know"? Suppose we admit that the raising of the hive (as he tells us about), for the time being, retards the bees from entering the sections till the colony gets strong enough, or till some hot wave comes along, then they go in and "possess the land" *en masse*. This puts his bees in the same shape that Manum keeps his, and in just the shape all colonies should be in to build and complete perfect comb honey in sections. If we have, as a multitude of bee-keepers, erred in any one direction, I believe that to have been in the direction of trying to "stretch" our bees out too much, and in this way have received, as pay, imperfect combs of honey, together with thousands of unfinished sections in the fall.

Now, doctor, in letting your crippled, dehorned frame crawl out of that GLEANINGS arena, let me turn your face toward Bro. Ernest Root. What! scent the thing at once? Oh, yes! I see you do! Yes, that's it exactly! When that comb foundation with  $\frac{3}{8}$ -inch side-walls comes out, all of this trouble, worry, fussing, and locking-of-horns-in-the-arena matter will be at an end. Then we can use strips only an inch or two wide, and they will not turn, twist, or be eaten full of holes by the bees, or use tall or square, plump or lean sections; while if we fill the sections full we can secure as much section honey as we now do extracted.

And now as we agree again, or agree to disagree, at the worst, you just say to E. R. R., as you leave the arena, that the price of that  $\frac{3}{8}$ -inch side-wall foundation must not be very much above the square-foot price of the ordinary thin foundation, or the arena will be full of blood and fur, from the many disappointed gladiators who will fight over the price.

Borodino, N. Y.

[From the very beginning we have constantly kept in mind that the new deep-cell-wall foundation should be sold at a price not very much in advance per square foot of the ordinary thin foundation; and while we shall not probably be able to realize that point this year, owing to the great expense in experimenting, in making hydraulic presses, dies, etc., we hope to be able to do it next year. The price of any commodity must not exceed what consumers can afford to pay. If for instance, the new deep-cell foundation costs three or four times as much as the ordinary foundation, bee-keepers would not buy it, and consequently it could hardly be called a practical success—see editorials.—ED.]

#### REASONS FOR THE TWO-STARTER PLAN; DR. MILLER WHACKS BACK.

So the editor would like "to see Dr. Miller and Doolittle lock horns." Naughty editor! Would like to get two little boys into a fight!

Well, I don't know any fairer man to fight with than Doolittle; and whether he comes off victor or vanquished, he's always good-natured afterward.

It looks a little as if my "Straw" on page 884 was written in reply to the article on page 861; whereas it was written a week or two before I saw page 861. For some reason a good deal has been said lately about the matter of having sections built to separators. Whether my theory is correct or not, the fact remains that formerly I had no little trouble of the kind, and latterly no trouble of the same kind. That is, formerly a section was often built to the separator at the central part of the lower edge of the foundation, and in the few instances that now occur it is at one side, and comes from careless work failing to fasten one end of the starter to the top-bar of the section.

Friend Doolittle says, "The greatest cause for attaching combs to the separators lies in not having the hives stand level." When I read that I said to myself, "Doolittle's off; for a hive would have to be a long way out of level to bring the foundation within  $\frac{3}{8}$  of the separator." Then I went to figuring, and was surprised as well as somewhat humiliated to find that, with sections  $1\frac{1}{8}$  wide on an eight-frame hive, and starters coming down to within  $\frac{1}{4}$  in. of the bottom, one side of the hive would need to be only a little more than 2 in. higher than the other to make the bottom of the starter come within  $\frac{3}{8}$  of the separator. Now, it's easy to say that hives are not likely to be so far out of level as that; but one who has always done his leveling by the eye might be quite surprised on applying the spirit-level to find how far out of true his hives are; and I'm afraid there are a good many hives, especially on a hillside, that have one side nearly or quite two inches higher than the other.

But in my own experience, leveling the hive and obviating all the difficulties Doolittle mentions would still have left 19 cases out of 20 unremedied; for the hives were leveled with a spirit-level, full sheets of foundation were correctly put in, the sections were not put on until the harvest was ready and the colonies were fairly strong, and still the central part of the starter was attached at the lower edge to the separator. I think the trouble was that the honey-flow was not sufficiently strong, and perhaps that would come under the head Doolittle gives as putting on sections too early. Still, if I had waited till the trouble was over I would not have put sections on at all; and as it was, I got something of a crop.

The trouble came very much as Doolittle describes it, only, instead of curling at the sides, it was the central part of the lower edge of the foundation that reached the separator, if I remember correctly. The honey came in so slowly that, instead of being put all over, it was put

on the inner surface of the foundation; and the cells on that side being drawn out while the cells on the other side were left untouched, made the starter swing over to one side.

If the starter had been fastened to the bottom, of course it could not have swung over. Nowadays I put in a bottom starter, and the two starters will be fastened together before there's any chance for the swinging, so that proves a sure cure. If Doolittle would use bottom starters I suspect he would gain by it. He says he has so far overcome the trouble that "hardly one section of honey out of 300 is defective along this line." I think that with me not one in 3000 if indeed one in 30,000 is defective "along this line." I don't mean I never have any defective sections. Sometimes the plate of the fastener is carelessly used when too cold, and one end of the foundation drops, or the whole starter falls to the bottom; but the chief difficulty that I formerly had was in the starters being swung over against the separators, and since using bottom starters that difficulty has disappeared.

It's only fair to say that I sometimes have trouble with bottom starters. It is natural that they should tend to fall over, and too often they obey the natural tendency. I think friend Doolittle is right in saying drawn-out comb would be a help; but even then I think I would use bottom starters. It makes a pretty sure thing of having all solidly built to the bottom. But for the bottom starters I'd be willing to pay a big price for foundation with cells well drawn so it could stand up alone.

Now say, Doolittle, I'm willing to own up that, where hives are not level, there may be more trouble than I supposed, although that didn't cause the trouble at all in my case; and if you'll admit that, in my case, the trouble was the poor seasons, why, we'll shake hands and be friends again. □ But, mind you, this does not count the first chance I get to fight you about something else.

#### A FEW WORDS TO MR. DANZENBAKER.

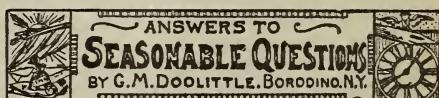
On page 891 you mention a Straw which questions whether "bees have to stop to gather and chink in propolis before commencing to store honey in the supers." You urge the importance of warmth, at some length. □ But, my dear sir, that is not the question at issue at all. I said nothing as to whether it was a good or bad thing to have the supers warm. The question was whether the bees stop to chink in propolis before commencing to store. If your argument has any thing to do with the case, it is that, because it is better to have the supers warm, therefore the bees make them warm before storing in them. But bees don't always do just what we think best, and, moreover, it seems to me it would be very poor reasoning on their part if they should decide to wait until cracks were filled before commencing to store, whereas

they might be storing and gluing at the same time.

Now, friend D., if you want us to believe that the bees hold back from storing till the cracks are filled, please give us some proof other than that it would be a good thing for them. Give us at least one proof that not only ought they to do it, but that they *do* do it. In the mean time I'll go a little further than I did, and give a distinct proof that in at least one case bees did not wait to calk before beginning to store. Last summer, colony No. 2 began storing in a super of extracting-combs when there was over their heads a crack 12 in. by  $\frac{1}{2}$  in., and they filled the super without filling the crack. Now you cite a case where they did the gluing before beginning the storing.

Marengo, Ill.

[Neither Mr. Doolittle nor Dr. Miller has seen the other's article, so in the first round they neither "lock horns" nor "hit between the eyes," exactly. What they would do in the *next* round if given a chance, I can't say; but so far they have very clearly set forth each other's position so that but little more needs to be said. Some will follow the Manum plan and others the two-starter plan.—Ed.]



#### HOW TO SECURE WORKER COMB.

*Question.*—As I have quite a quantity of combs which are only partly built to fill the frames, which I wish the bees to complete next summer, having as little drone comb in them as possible, I wish you would explain a little further in regard to how you work for the building of worker comb, as given on page 891 of GLEANINGS for 1896. You say there, "And by taking them (the combs) out in such a way as to keep the bees desiring only worker brood," etc. What I wish is to understand just how this is done.

*Answer.*—When any colony is so weak that it has no desire to swarm (during or preceding the swarming season or honey-flow), such a colony will invariably build worker comb (so that worker brood may be reared till the colony comes into a prosperous condition), providing they do not have sufficient comb already built. Taking advantage of this fact I use all colonies which are too weak to store honey to advantage, at the beginning of the honey-flow, treating them thus: Their combs are generally all taken from them; but sometimes I leave one comb partially filled with brood, and always one of honey, giving the combs of brood to other colonies so that they will be still stronger for the honey-harvest. I now put in one, two, and sometimes three frames with starters in them, or frames which are partly filled with

comb (as our questioner says his are), just according to the size of the little colony, after I have taken their combs away. In all cases I see that each one has a frame well filled with honey; for should storms or cloudy, windy weather come on at this time they would build no comb of any amount, and might starve; while with the frame of honey they will go right on converting that honey into comb, storm or no storm. If the right number of frames are given to suit the size of the little colony they will fill them quickly, especially when honey is coming in from the fields, and each comb will be filled with brood as fast as built. If not too strong they will generally build comb of the worker size of cell till the brood begins to hatch from the eggs first laid in the newly built combs by the queen; but as soon as many bees hatch they will change to the drone size of cells; or if the little colony is quite strong in bees they may change the size of cells sooner than this. Hence as soon as the first frames I gave them are filled with comb I look to see about how many bees they have; and if they are still well stocked with bees, or are in a shape where I may expect that they may change the size of cell before they reach the bottoms of the frames with worker comb (should I spread those apart which they already have and insert other empty or partially filled frames), I take out the combs they have already built, and thus put them in the same condition they were when I first started. But they will not build combs quite as freely this time as they did before, unless there can be some young bees hatching; so, if I can conveniently, I give them a comb containing mostly honey and a little brood (if they have such a comb it is left with them, which is more often the case than otherwise) from some other colony, when they are ready to work the same as before. In this way a colony can be kept building worker comb all summer, or till the bees are nearly used up from old age, the colony becoming so small as to be unable to build comb to any advantage, under any circumstances. But if just the right amount of brood is left, or given them, so that they stay in about the same condition, they will build worker comb all summer by the apiarist supplying honey or feed when none is coming from the fields. If not so strong but that I think they will still continue to build worker comb, instead of taking the brood away I spread the frames of combs (now built) apart, and insert one or more empty frames between, when these will generally be filled with worker comb before enough young bees hatch for them to change the size of cell. But this is always to be kept in mind, whenever you find them building drone comb: The combs they then have, all except the one mostly filled with honey, are to be taken away so that they may feel their need of worker brood again,

when they will build cells of the worker size once more. I have had hundreds of frames built full of worker comb in this way, hundreds completed, as our questioner proposes to do, and hundreds "patched," where I had cut out small pieces of drone comb, which had gotten in in one way or another. If any one wishes a mutilated comb to be fixed so it will be a surprise to him just give it to one of these little colonies and see what nice work they can do at "patching" with all worker comb.

#### AN EXPLANATION WANTED.

*Question.*—On page 17, Jan. 1, you speak of the merits of a tall section over a square one; and one of these is, that "they bring from two to three cents per pound more in market." Am I to understand that the "pleasing appearance" of these taller sections causes people to pay that much more for honey in such sections than they would for honey in the square form of section?

*Answer.*—Well, no, not just that, although I think a pleasing appearance often decides the difference in price of from one to three cents a pound on section honey. If you will turn again to page 17 you will see that I did not say that a section  $3\frac{1}{2} \times 5\frac{1}{2} \times 1\frac{1}{2}$  would sell for two to three cents more per pound than would the  $4\frac{1}{4} \times 4\frac{1}{4}$  section; but that "why I prefer them to the larger size is that they bring from two to three cents per pound more in the market." What was the larger size spoken of, in that connection? The second line at the beginning of the paragraph will tell the reader. That says "sections varying in size from half a pound to two pounds." This makes it plain that I was not comparing the sections I now use with the  $4\frac{1}{4} \times 4\frac{1}{4}$ , or square section, when I spoke of the price. Now I wish to say that I was opposed to the change from the "prize" or two-pound section to the one-pound or  $4\frac{1}{4} \times 4\frac{1}{4}$  section, and have always claimed that, had bee-keepers held steadily to the prize section, no consumer would ever have demanded any other, and the price for those sections would not have been lower to-day than it now is for pound sections. Bee-keepers made themselves nearly double the work as regards setting up, putting in foundation, scraping off propolis, and handling sections for a given number of pounds, when they pushed the  $4\frac{1}{4} \times 4\frac{1}{4}$  sections to the exclusion of the prize section; and the only reason which I could ever see for this was a desire to compete with one another. But, no matter how it came, it was done. I held on to the prize section as long as it sold in market for as much as the  $4\frac{1}{4} \times 4\frac{1}{4}$  did, less from one to one and one-half cents per pound, for I considered that, taking all things into consideration, the prize section paid as well as the other till a lower price than  $1\frac{1}{2}$  cts. per pound was reached. After that was reached I changed to the pound section, as given on page 17; and be-

cause a difference of two to three cents was reached, that became the reason of my changing, and for my preference for the pound section. As the prize section was a tall section, I still adhered to the tall form when I came to use a pound section.



THOSE HONEY-CARAMELS IN GLEANINGS, PAGE 899.

I made a sample lot of honey-caramels, as you described in GLEANINGS, but I put in granulated sugar instead of the glucose, seasoned with wintergreen. A party here this evening was so taken with it that he is going to get me to make him 100 pounds, and put on a label telling exactly what they are made of. I believe if all bee-keepers take hold of those recipes Dr. Miller is getting up it will, if well worked, be of great value to bee-keepers in general as well as a good pure food. DOUGLAS D. HAMMOND.

Malone, Ia., Jan. 6.

TALL SECTIONS; LAYING THEM ON THE SIDE  
IN THE SUPER PREFERRED.

I am at a loss to understand why Mr. Doolittle would place oblong sections on end. Of course, you can place more in one super, but we think this a disadvantage for several reasons. One is, we often put these shallow supers on colonies at the beginning of the honey-flow; also on swarms that would object to a larger and deeper super. Again, our experience is that the bees will finish these oblong sections sooner, and, either from retaining the warmth or from their preference for beginning work close to the brood-frames, or both, the bees certainly begin work more readily on these shallow sections. It is an easy matter to examine these shallow sections without removing from super, and they can be readily tiered up to suit the requirements of any colony. We bought our first oblong sections of A. I. Root in Feb., 1893. They were  $3\frac{1}{4}$  inches high and  $5\frac{3}{4}$  long. They overweighed. Since then we had several thousand made  $3\frac{1}{8} \times 5\frac{1}{4}$ , 7 per foot; 21 of these sections cover the same space, about, that 28 of the  $4\frac{1}{4} \times 4\frac{1}{4}$  do. Our grocers prefer them. They make a handy package; and by placing a few of these sections of honey on the counter or in the window tiered up like brick, your lover of honey will hardly pass them without buying.

I wish to say that many of our bee-keepers could dispose of several thousand pounds of their comb honey at towns within driving distance, greatly to their and their brother bee-keepers' advantage. You do not need expensive cases to show in; have your sections and

crates clean. Do not leave the grocer too much at one time. Tell them it is pure, from your own bees; and that when the honey is sold they can pay a certain price for it.

T. S. COMSTOCK.

North Manchester, Ind., Jan. 26.

HOW TO FIGURE INCOME ON 300 COLONIES IN WISCONSIN.

There is one question upon which I should like the expert opinion of some member of your firm; viz.: What would be a fair or medium income from 300 colonies of hybrid and full Italian bees per year if managed by a man of long experience and very considerable skill in bee culture, allowing a reasonable sum for employing competent assistants as need, and provided the bees are in a very fair honey country, and so divided that not more than 75 colonies will forage from the same territory?

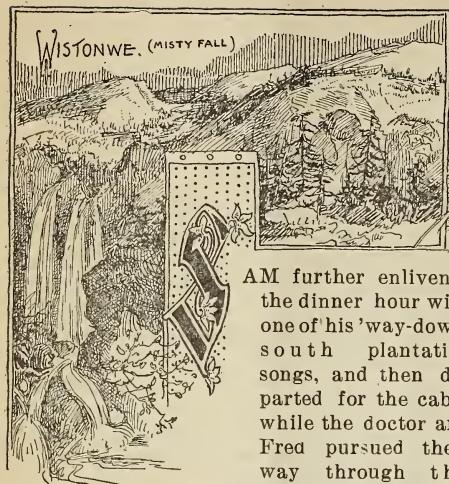
Winneconne, Wis., Jan. 7. □ G. R. FRYE.

[This is a very hard question to answer, as so much depends upon conditions, such as the apiarist and the locality. Wisconsin is one of the greatest honey-producing States in the Union; but I doubt not that there are localities in that State that are practically good for nothing, even though not very remote from other localities where plenty of honey is produced. A difference of only ten miles makes all the difference in the world.

In the first place, every thing depends upon the locality and the season. Assuming, then, that the man who is to operate the yards is one of long experience, the locality might yield, on an average, about 40 lbs. of comb and extracted honey. Some years the amount will be about 10 lbs., and others perhaps 75. During the last five years the average would perhaps be nearer 25 than 40. This is speaking generally of the State. Three hundred colonies, with an average of 40 lbs. each, would produce 12,000 lbs. of honey. Suppose that this honey averages 8 cts.; that would mean \$960. If the average proved to be 25 lbs. (which would be safer to figure), the gross amount would be \$675. Before you could get at the amount of your own labor you might have to figure on at least two months of time for a helper—it is possible you might manage without one; then there would be interest on the valuation of 300 hives and appliances, a certain amount for hauling the bees back and forth, carrying of sections, supplies, etc., from one apiary to another, and your own trips to and from each yard. As you could figure better the cost of these items, you could arrive at about the amount you ought to expect under fair conditions.

You will need to figure also that there will be some years when, perhaps, your averages will be only about 10 lbs. per colony, and occasionally a year when you will get absolutely nothing. Perhaps there will come a year when the balance will be clean the other way—when you will have to feed perhaps 10 or 15 lbs. of syrup per colony.

I have put the average price of honey at 8 cts. If you produce an equal amount of each, this will be figuring 10 cts. for the comb and 6 cts. for the extracted, both first quality. Perhaps some bee-keeper from your State can give us a set of figures that will give us an idea of the expenses we need to figure in; but from this standpoint I can hardly give you any thing more definite than the above.—ED.]



AM further enlivened the dinner hour with one of his 'way-down-south' plantation songs, and then departed for the cabin while the doctor and Fred pursued their way through the valley.

"I think," said the doctor, "that I will not show you my apiary until we return from the sulphur springs. I will show you the field first, and its possibilities, and the apiary last."

"Suit yourself as to that," replied Fred; "every thing is interesting so far. I take it that the apiary is on the terrace above us, from the way bees fly over; and then I thought I caught a glimpse of it from that lofty observatory. They followed down the stream;" and Fred, addressing the doctor, said, "I supposed you had quite a number of Indians in here; but I have seen none thus far."

"There are only a few that come in here," replied the doctor, "and then only upon some religious rite, or when I need extra help. This is a sacred valley to them, and they have about as strange a tradition as Sam has related about Ham's change of hue. I have related to you some of their traditions; but the one that has much to do with their rites in this valley is that their tribe sprang from a gopher snake. A white squaw in splendid white raiment changed the snake into an Indian, and at the same time changed a rattlesnake into a squaw. Now, according to their tradition this same white squaw will reappear and change them back into snakes, and confine them ever after in this valley."

"But, doctor, the bees having usurped the place of the snake I should think you could work them out of that absurd idea."

"I am working to that end," replied the doctor, "but as yet nothing has usurped the rattle-snake; and standing as it does for the squaw I much doubt if any thing ever will, for you must know of the contrariety of squaws generally; furthermore, my young friend, little do you understand the vagaries of human nature. It has taken Christendom ages to throw off rank superstitions, and still after these hundreds of years I fear there are too many super-

stitions left. Still, I am making progress, and the young men are throwing off their superstitions, and are amenable to moral teachings, as you have observed."

"Then there are but few Indians who enter the valley, and no squaws?" queried Fred.

"No squaws," said the doctor. "You are, therefore, not only in a bee-keepers' paradise, but also in a paradise for bachelors."

"Or will be," said Fred, "until the white squaw arrives and overturns things."

"Yes," growled the doctor, "that is just what always happens when the squaws arrive. But, Fred, we have something more profitable to talk about than traditions and squaws, and I am very glad to have you here to talk with. For the past eight years I have had but little communication with my kind and the outside world, and it is a new phase of my life to have a kindred soul here with me to commune with. But to leave our reflections, and to get down to practical things, we are in the center of the valley, and here are the hot sulphur springs."

"Do you know, doctor, this is a great curiosity to me? I have read much of such phenomenal things in this country, and these are the first hot springs I have had the pleasure of seeing—many of them," said Fred, in admiration, "and all along the base and sides of this cliff, steaming hot too."

"Yes, boiling hot," said the doctor, "and I wish to show you my improvement. When I came into the valley, and until recently, the cold water from the upper end of the valley and this copious stream of hot water united at this point, and flowed to the outlet together. But now you observe that I run the cold water into that ditch over there. Now let me demonstrate to you the reason why. You observe that the old channel is full of that obsidian formation that surrounds the valley. This boiling-hot water running over that formation raises it to a high temperature, as you will readily feel if you try to pick up one of those stones."

"Jerusha!" said Fred, as he attempted to hold a piece of the hot obsidian in his hand, but quickly threw it down, and, blowing his fingers, exclaimed, "That is hot."

"With these simple flumes I can turn the hot water into the cold-water channel. Now, when I turn the cold water upon those hot stones,

see what an amount of steam arises; and if we stand here long enough there will be a line of vapor clear to the outlet. When the steam ceases to rise I turn off the cold water, and the hot water on, and heat the stones again, and *vice versa*, as long as I please."

"I plainly see how it works," said Fred; "it is very interesting; but does it pay to sit here and do that for fun all day?"

"Fun!" said the doctor, with a tinge of impatience in the tone. Then he laughed, and said, "Well, that certainly does look like a funny operation, for the sun soon dispels the steam. But let me tell you, my friend, when the atmosphere is just right, and I do this in the evening, I can fill this whole valley with a heavy fog. Now do you see any utility in that?"

"I see," said Fred; "for in the morning, after a heavy fog, the bees do a roustabout

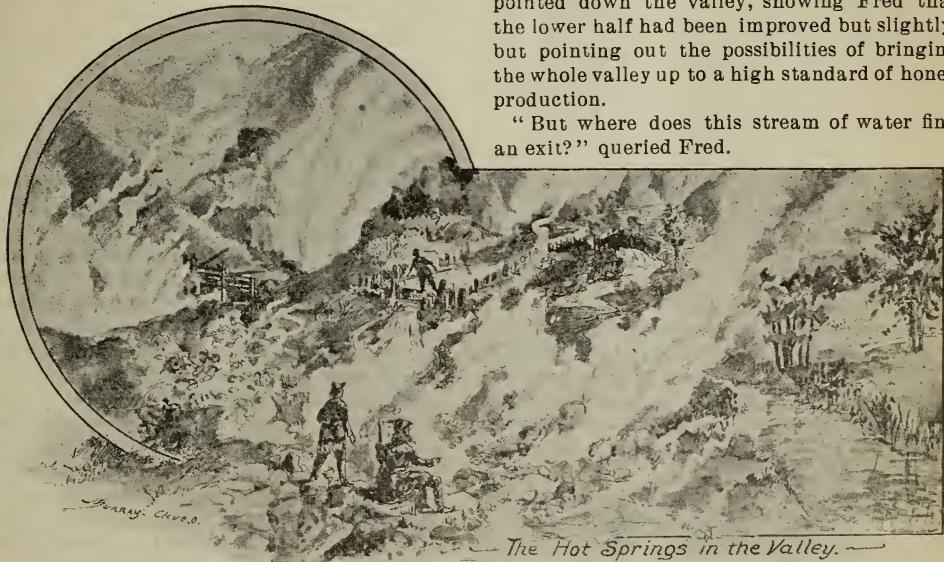
"In that case then," said the doctor, laughing, "you might provide yourself with mallets, and go out on a tour of jarring the trees. But really the lighting is the factor. Every flash liberates quantities of ozone; and where ozone is abundant, there is a plentiful secretion of honey. I am now studying upon a plan by which, in connection with the fog, I can ozonize this whole valley. If I succeed we can astonish the natives with our honey-yields."

"Well, that would be a wonderful thing, doctor, to astonish these natives who are so stoical about every thing. But, really, your plans are too deep for me. I am not educated on the scientific side of bee culture."

"Of all places in the world, in this valley is just the place to learn the highest science in bee culture."

Stepping up a little rise of ground the doctor pointed down the valley, showing Fred that the lower half had been improved but slightly, but pointing out the possibilities of bringing the whole valley up to a high standard of honey production.

"But where does this stream of water find an exit?" queried Fred.



*The Hot Springs in the Valley.*

business; for, generally, fogs have an effect upon the more rapid secretion of nectar."

"Precisely so," said the doctor, "and especially hot fogs such as we have in this valley. Now, what do you consider the very best atmospheric conditions for the secretion of nectar in the blossom?"

"I can speak only from my eastern experience," replied Fred; "and I find that, away down in Maine, a hot July day, wherein we have several short sharp thunder-showers, the flowers seem to overrun with nectar, and the bees do a roaring business."

"And why?" asked the doctor.

"I really don't know," replied Fred; "but I have had a sort of vague idea that the thunder sort o' jolted the honey out of the tree or plant into the blossom."

"Oh! it plunges into a jagged cave at the extreme end," replied the doctor. "We will now return and visit the apiary. It is well up on the third terrace, and we will follow this zigzag trail to the upper terrace, where we find a fine view of the valley."

As they climbed, the doctor called attention to the charming little waterfall near the entrance. The Indian name was *Wis-ton-we*, or Misty Fall.

"When we go up there again you must examine my scientific home-made elevator, a rawhide rope, a large rawhide water-bucket, and other original fixtures. But here we are. This gives a better view of the whole valley than we get from any other point."

The *Wis-ton-we*, after a plunge of 50 feet, collected itself into a little stream that, from

their point of view, looked like a silver cord winding in and through the shadows of trees and shrubs. Now and then could be seen oval ponds glistening in the sun like beads upon the cord; clusters of live-oaks snuggling close together like consulting friends; tall prim gum-trees in regular order like sentinels upon the outposts; willows, their long pendent branches toying in the pools; climbing roses and flowering vines hiding rocks, or pendent from the cliffs, their many-hued blossoms lighting up each crag with a glory of color, and filling the air with fragrance; and the effect of all was simply enchanting.

"Doctor, I am charmed," said Fred, with enthusiasm, as he looked down upon the beauty below and around them. "I never thought that a place on earth could be made so beautiful."

"Neither could it," replied the doctor, "except in this glorious California."

"But, doctor," said Fred, with an eye to practical results, "if you would throw this valley open to the public it would bring you a revenue equal to a gold-mine."

"Gold! gold!" said the doctor, with much feeling; "is there no place on this broad earth where man may seek a home, and rest from the gnawing, sordid greed for gold? Is there nothing higher, nobler, in this life than to grasp, grasp, and hoard a paltry bauble that for a day brings pleasure, and for eternity leaves a sting? Gold! that cause of ceaseless strife wrecks nations, divides our race, rends families, debauches the church—away with it! let this valley, with its crystal water and untainted air, be free from it; and, though we eat but a crust, let it be with contentment, and great gain to body and soul. But I do not blame you, Fred, for looking upon the money value of this valley. You are young, and come of a thrifty race of people who have carved out meager fortunes on the sterile hills of the far East, and to you this probably looks like a waste of opportunity; but when the gray hairs peep in profusion from under your hat-brim you will or should have a different view of such things."

"Well, doctor, this is your paradise, and you seem to have entire control of it, and I know it would mar its peace and quiet, and perhaps prevent many of your experiments if the public were allowed to enter; and, though I know the evils of the worship of gold are many, I also know that gold properly used brings with it countless blessings, and I am sure you could use it as such. But even if you do not let the public in, when I look over the valley I sadly miss two very important elements—so important that the beauty is marred without them."

"Now, Fred, I am curious to know what your two elements are. To me this valley is

near perfection. If gold will plant your lacking elements, it will be forthcoming."

"Yes, you have it, doctor, near perfection; and to add the last touches needs neither silver nor gold, but love. It lacks lovely woman and romping children. In my far eastern home I have a loving mother; and, aside from the home loves, the neighboring children were my best friends. Doctor, let me sing you my lovesong;" and for the first time in many weeks Fred sang:

I love it, I love it, the laugh of a child,  
Now rippling and gentle, now merry and wild;  
Ringing out on the air, with innocent glee,  
The merriest sound in the world for me.  
Oh! the laugh of a child, so wild and so free,  
Is the merriest sound in the world for me.

Memories that had lain dormant in the doctor's breast for years were touched. He brushed a tear from his eye, but briskly remarked, "Fred, you are too sentimental. For a change of subject let us look at our apiary;" and he led the way down the terrace.

Fred Anderson, the enthusiastic bee-keeper, now forgot his other surroundings, and began to speculate upon the wonderful apiary he should see. The doctor had exploited the wonders of the valley for honey production so highly and learnedly, of course the apiary would be upon the same scale. They descended to a little amphitheater that sat back from the terrace proper, and covering, perhaps, an acre of space—an ideal location for an apiary. On the far side of it, against an odorous bank of heliotropes, were ranged ten colonies of bees in rough hives made of old gasoline-cases.

"For heaven's sake, doctor," exclaimed Fred in astonishment, and a tinge of anger in the tone, "those are not all the bees you have in the valley?"

"That is certainly all," said the doctor; "but, even were there fewer, Fred Anderson, what are you going to do about it?"



#### WARNINGS TO BEE-KEEPERS, IN BEE-SUPPLY CATALOGS.

ALTHOUGH the bee-journals have cautioned their readers over and over again not to ship their honey to new and untried firms, it is evident that many bee-keepers, notwithstanding, are doing it right along, and are suffering the consequences. The probabilities are that they do not take *any* bee-journal. Perhaps they think they can not afford it. After they have lost several hundred dollars through an irresponsible or dishonest commission house, perhaps they will begin to think they *can* afford

it. Only \$1.00 a year invested in a bee-journal will save several times that amount in valuable kinks learned during the year, and will enable them to fight shy of the rascals engaged in the business of selling honey.

Realizing that the patronage of the journals is comparatively small, we have this year put a paragraph in our catalog, that reaches a circulation of 150,000 a year, warning our patrons to beware of new and untried commission houses. Usually, firms promising to do extraordinarily big things are the very essence of rascality, and the more aggravating because they are sharp enough to evade the law. Well, it would not be a bad idea if dealers and manufacturers would advise their patrons in a similar way in their catalogs. Let us leave no stone unturned to post bee-keepers on the ways of these "snide" concerns.

#### THE NEW HONEY-LEAFLET BY DR. MILLER.

OUR honey-leaflets are now out, and are entitled, "Food Value of Honey." The subject-matter was prepared by Dr. C. C. Miller. I gave him the general outlines of what I wanted, and told him to work the subject over thoroughly, in a way to interest consumers; and this he has done in a most admirable manner. The following headings appear through the leaflet: Honey as a wholesome Food; Honey the most delicious Sauce; It is economy to use Honey; Give Children Honey; Honey the best sweetening for hot Drinks; Comb and Extracted Honey; Different Kinds and Flavors of Honey; Adulteration of Honey; Care of Honey; The various uses of Honey; Honey-cooking Recipes. These last have been carefully tested in the homes of bee-keepers. Some of the recipes heretofore published make "messes" that are simply vile. The doctor has carefully selected only those that are good, many of them having been tested in his own family. Among these is the recipe for the celebrated honey-jumbles. The others comprised various recipes for making honey-cakes, honey-gems, honey cough-cure, summer honey-drinks, etc.

Taking it all in all, I believe this leaflet is the most comprehensive and most complete of any thing that has ever been gotten out; and it will do a world of good in stimulating trade in pure honey, providing bee-keepers make an effort to place it among their customers. In fact, we are preparing to distribute it all over our town of 2000 inhabitants.

We put the price so low—just high enough to barely cover cost—so there will be no reason why bee-keepers can not scatter it far and wide. Price: 10 for 5 cts.; 100, 20 cts.; 250, 40 cts.; 500, 75 cts., all postpaid; lots of 1000, 75 cts., postage or express extra. The leaflet contains something like 3000 words. It is printed in bold, clear-faced type, leaded brevier, like our A B C book, and the matter occupies four

pages the size of this. When desired to inclose it in a letter, all that is necessary is to fold it twice as you would a letter.

I will further make the suggestion that every honey-producer in the country, every time he writes to his customers, inclose one of these leaflets. The price is so extremely low that he can well afford to do it. If the demand shall prove to be great enough, we shall be able to reduce the price still further. As it is, we expect an enormously large demand or else we could not make these prices, for we do not care to make any direct profit on the leaflet.

#### HONOR TO WHOM HONOR IS DUE, AND CREDIT TO WHOM CREDIT IS DUE; WHO FIRST USED STAPLES UNDER THE PROJECTION OF TOP-BARS, AS END-SPACERS?

SINCE our last issue, describing the improvements on Hoffman frames, as given on page 94, we have received scores of indorsements and orders. I do not know of any thing we ever introduced that seemed to have been so instantly accepted as a move in the right direction as the end-spacer to the Hoffman frame. Among those who consider the improvement of great value are two or three who used the idea long before we did. Mr. F. Boomhower, of Gallupville, N. Y., a bee-keeper who has figured more or less prominently in the bee-journals for perhaps a score of years, says he has used end-spacers for years, as we have described them, including the wooden gauge and all. In proof of this he furnishes one of his catalogs, issued in 1893. In this he sets forth the great desirability of the improvement. A few quotations will suffice to show how much he valued the idea. He says: "Any one can, for about 2 cts. per hive, add this improvement to his frames which he may already have in use, without changing or getting new ones;" that they "add much to the enjoyment of the operator, and make rapid manipulation a pleasure. . . Any frame or frames can be instantly removed, and at all times, without the use of any knife or pry to remove them, as is the case with the Hoffman or any closed-end frame. There being a bee-space between the end of top-bar of frame and shoulder of rabbet, in end of hive, there is no possible chance for the bees to apply or deposit any propolis; and any or part or all of the frames can be instantly shoved across from one side to the other. . . This arrangement alone is a valuable one, and merits the attention of every progressive bee-keeper."

The frame that Mr. Boomhower describes, as will appear from the disparaging reference to the Hoffman, as above given, was not exactly such a frame as we illustrated in GLEANINGS. I have before me one of his hives and a set of the frames. The top-bar is a bee-space short at each end, and a nail driven in diagonally through the top into the end-bar. These end-

bars are narrow, and staples are used as side-spacers.

However, Mr. A. G. Willows, of St. Catharines, Ont., says he used exactly such a frame as was described on page 94 in last issue, in the summer of 1893, and that he wrote to us at that time (we had forgotten it) calling our attention to them, but that we replied that we could not see our way clear to change the length of the top-bar, or something to that effect.

Both Mr. Boomhower and Mr. Willows very properly felt that they ought to have the credit for being prior in the use of a bee-space around the top-bars in connection with a staple end-spacer. Both seem to be entirely ignorant of what the other has done.

Now, if the reader will turn to my article on page 94 of our last issue he will see that I did not claim the idea was *new*. I simply carried the impression, which was true, that the improvement was something new to our *catalog*. In other words, we introduced the improvement as a new one to our customers. Just as we introduced the Hoffman frame in 1890—a device that had been used for 15 years or more prior to our adoption of it. As I shall presently show, neither Mr. Boomhower nor Mr. Willows is prior in the use of the bee-space around the top-bar in connection with staples. A. I. R. says Langstroth was the first one to make and use it; that he bought frames of this description of Ransom & Cobb, of Cleveland—a firm who made the Langstroth hives away back in 1864 and '5. In proof that Mr. Langstroth did use this very thing, the reader is referred to "Langstroth on the Honey-bee," 1857. Plates 1, 16, and 22 show the bee-space around the ends of the top-bars. It is true, the staples are not shown; but A. I. R. says they are mentioned and their use discussed in the old volumes of the *American Bee Journal*, and were used by him and quite a number of other bee-keepers who were then following Langstroth.

1857! Well, well! How many times we think we have invented something, only to find that Langstroth was ahead of us by about thirty years!

But I do not care how old an idea is. If it is a good one, use it; and if not, throw it away.

Unless Mr. Boomhower used staples under the projections of the *Hoffman* frames pure and simple, Mr. Willows will have to have, for the present, at least, the credit of being prior to any in the use of staple end-spacers when applied to *Hoffman* frames. With regard to staples or nails as side-spacers, E. France & Son used them a great many years ago—just how long I can not say. The idea is certainly very old. I find in *GLEANINGS* for 1890, page 99, and 1891, page 474, spacers of this description. In the *American Bee Journal* for 1871, page 252, will find that Henry Alley used

staples as side-spacers. Again, in the same journal it seems that Mr. Thomas used side-spacers to Langstroth frames. A reference to it is given on page 203 for 1870. British bee-keepers have for years used a bee-space around the ends of the top-bars, in connection with a shoulder or end-spacer, to butt up against the hive-rabbit under the top-bar. See Cheshire and the files of the *British Bee Journal*. A single reference from this journal will suffice; viz., Jan. 1, 1876, page 169. Again, Mr. A. B. Weed (brother of the foundation man) used short top-bar projections with nails under them some 15 years ago.

In justice to Mr. Boomhower, perhaps it would be fair to state that he may have been, and probably was, the first to make use of staples as *both* side and end spacers. His arrangement will make a very excellent self-spacing frame, and I will illustrate it in an early issue of *GLEANINGS*. But taking it all in all, I should prefer the Hoffman as illustrated in our last issue, for the reason that I *want* the wide part of the end to help conserve the heat, and also because the sticking together of these contiguous parts of the frame is a decided advantage rather than a disadvantage. I *want* the frames to stick together some. It is much easier to handle them thus in pairs and trios than to try to hold them together by mere friction; and then in carrying the hives about, this slight sticking prevents the frames from slipping about. Still, there may be some who would prefer the Boomhower plan. All that would be necessary would be a few extra staples applied to our regular thick-top frames having end-bars  $\frac{1}{8}$  wide. We can furnish hives for this combination at the same price as our regular ones; but the hives will have to be ordered from the factory rather than from any of our branches or agencies, as we shall not regularly keep them in stock.

#### FOUNDATION WITH DEEP CELLS; MR. HUTCHINSON'S "NOTE OF WARNING."

COMMENTING on what was said on this subject, both in the *American Bee Journal* and in *GLEANINGS*, Mr. Hutchinson, in the February *Review*, feels "that a most earnest warning ought to be given regarding the use of such foundation." Well, perhaps I had better give all he says, and here it is:

We all know that the eating quality of comb honey has not been *improved* by the use of comb foundation—much has been the complaint about the "fish-bone" in comb honey. Comb, natural comb, is of a light friable nature—like the feathery, new-fallen snow. Once this snow has been *melted* it can never be restored to its former state. It may be frozen again, but it will be hard and solid; it will be ice. Of course, Nature can evaporate the water, and form it into snow again, but man can not restore it to snow. In a like manner, once comb has been melted into wax its character is changed. It is no longer comb, but *wax*. Another simile has been used by Mr. Bingham; viz., that "butter is butter, but melted butter is grease; so comb is comb, but melted comb is *wax*." Comb foundation

of the highest, most fragile type is bad enough; foundation walls one-half inch deep will be an *abomination*. Unless I am greatly mistaken it will be as great a blow to the sale of comb honey as has adulteration to the extracted-honey market. At least, let us try this thing most *cautiously*. I fear, too, that unscrupulous men would use this product even if it did injure comb honey. Let us be careful what we do in this line.

I would not assert that artificial comb could not be made having walls as thin as those of natural comb, but they would still be of *wax*; and comb honey having such a product as its base would be little else than honey "done up" in tough, leathery, "gobby" wax—not comb honey with its delicious, fragile, toothsome, flaky comb.

I believe that Mr. Hutchinson is thoroughly honest in his convictions on this matter. In fact, I once thought as he does; but Mr. Weed knocked my theories into smithereens by hard facts in the apiary.

He had been experimenting and testing this new product for *nearly two years* before we said any thing about it in print. He has put it on our hives, and had the bees draw it out—in fact, tried it under all sorts of conditions. The proof of the pudding is in the eating; and the results in our apiary so far seem to show that Mr. Hutchinson's fears are groundless. The comb from the new product is *not* tough and leathery at all. After a long series of experiments\* we have about come to the conclusion that, in the use of foundation, the bees do not utilize or in any way make use of the wax in the *base or septum*; but they will utilize all the wax in the *side walls* to the depth of  $\frac{1}{8}$  inch. Ordinary roller-mill foundation has a surplus of wax in the wrong place. We are aiming in the new product to put it in the *right place*. With this end in view, Mr. Weed has been experimenting along the line of making deep-cell foundation, the bases of which are just as thin as the natural; and the walls, instead of  $\frac{1}{8}$  inch thick, as in the natural, are  $\frac{1}{16}$ . Careful measurements last year showed that the bees reduced this  $\frac{1}{8}$  down to about  $\frac{1}{16}$ . The surplus wax was simply used to build up the depth of the cells.

I grant that there is fishbone to some extent, resulting from the use of comb foundation; but the reason of this is that at present there is more wax in the bases than there needs to be; and the wax in the side walls is in such shape that the bees do not utilize all of it. The result is that a midrib is left in the center of the comb, thicker than will be found in combs built wholly by the bees. In the new product we propose to put this wax where it will not be detected in the eating. The very snag, then, that Mr. Hutchinson is afraid we shall run into is the *very one* we would avoid in the new product. In other words, it is not proposed to use more wax than we now use in thin foundation; but we do aim to put that wax in such shape that bees will utilize it in such a way as to leave no midrib or fishbone in comb honey.

Mr. Hutchinson need have no fears that we shall rush on the market the new deep-cell foundation in any quantity this season. At present we have only one small machine, and turn out pieces about 4x5 inches. We are working on another machine to make samples perhaps 5x8 inches. The machinery and dies necessary for the purpose are very expensive, and, even with the larger machines, the output will be very limited. If bee-keepers are holding back their orders for foundation, expecting the new product *in quantity* this season, they will be disappointed. They had better make their requirements, irrespective of the new article, and in the mean time we will try to furnish a super or two of the new deep-cell foundation to those who wish to try it.

After reading the above, Mr. Weed added:

It seems to me that Mr. Hutchinson ought to have put his "Earnest Warning" at the head of Mr. Baldridge's article in the *same issue*. Mr. B. "prefers light brood to thin foundation for drawn combs," or, in other words, proposes to use much more wax than I do. Would not Mr. Baldridge's "abomination" be still more of a temptation to "unscrupulous men"?

#### APICULTURAL INVENTIONS AND THEIR DEVELOPMENT.

At the Michigan State Bee-keepers' convention, reported in the *American Bee Journal*, Mr. T. F. Bingham, of smoker fame, in his paper on principles in apiculture, closes up thus:

In counting up the inventions pertaining to bee-keeping, which have been long tested, weighed in the balance and not found wanting—inventions which no one has been able to improve or improve upon—I find no other State has made so many valuable inventions since the invention of the hanging movable-comb frame by the Rev. L. L. Langstroth, as has Michigan.

This may or may not be true; but one thing I believe is true—that Ohio has done more to develop and put into practical use inventions and improvements in apiculture than any other State in the Union. Before our Mr. A. I. Root began the sale of supplies, very little had been done in the way of developing inventions of merit. I do not think it is egotistical to say that he *pushed into* public favor the honey-extractor, comb foundation, section honey-boxes, and did, perhaps, more than any other man to make Langstroth dimensions standard. In later times we have popularized self-spacing frames; improved the construction of hive-corners and hive-covers; bettered the quality of foundation; and now we are introducing the new drawn or deep cell-wall foundation.

#### AMALGAMATION DEFEATED.

Just as we go to press, the certified report of the judges of election for the National Bee-keepers Union has come to hand, showing that amalgamation is defeated two to one, and all the old officers re-elected, including General Manager Newman. In view of the reasons stated on page 60, the result is no surprise. GLEANINGS bows to the will of the majority. No room to squeeze in more this time.

\*Mr. Taylor's observations as given in the *Review* are quite in line with our own experience.

## OUR HOMES.

He that soweth to his flesh shall of the flesh reap corruption; but he that soweth to the Spirit shall of the Spirit reap life everlasting.—GAL. 6:8.

Camp Verde is about thirty miles from Jerome, and about fifty miles from Flagstaff. These are the nearest cities or towns of any account. Camp Verde itself used to be a military station with a fort or camp as a protection from hostile tribes of Indians. The Indians, however, have long since ceased hostilities, and the camp is broken up. All that remains is the long low adobe buildings, a single store, and one or two dwellings. It was Saturday night when I got into the Verde River. During the evening some of the neighbors dropped in, and finally a young minister who was to preach to us on the morrow. He was a bright, vivacious, muscular young Irishman, or at least he came from Ireland. During his early life, he, in the language of our text, did considerable in the way of sowing to the flesh. Through the grace of God he was converted, however, and is now giving all his strength, life, and zeal toward sowing to the Spirit. I shall long remember that pleasant evening at friend Bell's. We kept the minister talking, and answering questions until he would have been tired out had it not been for his Irish muscle and the grace of God that seemed to make him untiring in his work. He preaches at three and perhaps four different stations, scattered a good many miles apart. Most of his appointments are every other Sunday; some of them only every third Sunday, and, if I remember correctly, at some points they have preaching only once a month. At most of these country places, however, they have Sunday-schools and Endeavor meetings every Sunday. I believe these are both generally well attended. But there is a general complaint of poverty all over this locality. The minister is paid partly by the church that sends him out, and he is expected to get a part of it from the people where he preaches. Mr. Bell informed me, however, that they were very much behind in raising their small proportion. Rev. Mr. Healy has never lost courage and zeal, however, even if his people are a little behind in paying his salary. He is one of the most untiring and indefatigable Christian workers I ever knew.

After giving us an excellent sermon at the schoolhouse he hastened off to another appointment several miles up the river. He preached and exhorted there as usual; and as we were coming home from the Endeavor meeting in the evening we passed a little home where I happened to know there was quite a family of children. I stopped a moment to listen to the very earnest talking from some one inside, and looked inquiringly at Mr. Bell.

"Oh!" replied he, "that is only our minister. As soon as he gets through preaching he makes house-to-house visits, calling on those who do go to church and on those who do not go, all alike. In fact, he puts in pretty much all his time week days and Sundays in visiting the people of his different parishes."

There were so many of us in friend Bell's pretty little home that Saturday night that we were asked, the minister and I, if we could manage to occupy the same bed. I do not know just what I said, but I felt like saying, "To be sure, we can. So far as I am concerned, brother Healy and I can not only get along in the same bed together, but we could get along side by side through all life's journey, clasping hands as comrades in the Master's service."

Oh how much good it does me to find strong,

earnest, bright young men, giving their whole lives toward battling for the right, and holding up before the world the cross of Christ!

I am now going to "tell stories out of school" just to illustrate what Christianity has to meet in these out-of-the-way places. Of course, there are boys and girls to be looked after, even if the homes are scattered more or less apart; and these boys and girls will get together and have some sort of frolic now and then. Perhaps one reason why the Endeavor Society has made such headway is because it affords the means of letting young people get out and see each other. Through brother Bell's instrumentality, together with that of his good wife, they have quite a good Sunday-school and Endeavor Society in their neighborhood. Yes, there are two or three of them — one at the old camp and one up the river near the locality where brother Bell and I had our "falling out." Well, some time last fall, I do not know but it was toward Thanksgiving time, the Endeavor Society decided to have a "husking bee." Quite likely, husking-bees had been fashionable before any Endeavor Society was started. When the Endeavorers took the husking-bee in charge, it was understood — at least by the Christian people — that it would be something in line with the Endeavor socials. I believe the husking-bee was a success. But after it was over, some of the young people, in accordance with a time-honored custom, commenced to clear away the chairs and tables, so as to wind up with a dance. The Endeavorers protested, and finally managed to wind up the husking-bee at a seasonable hour, without any dance. A certain element, however (but I am not prepared to say whether they were members of the Endeavor Society or not), were very much put out, and declared they would "pay" the Endeavorers off, and "get even" with them. Please bear in mind what I have said about the difficulty of paying the minister's salary. As a rule, the crops are poor in the Verde Valley; and not only do the people work hard for whatever they get, but all their produce must be hauled over long mountain roads from thirty to fifty miles before they can find a market. Under the circumstances it seems hard to call upon these poor hard-working people for contributions for *any* purpose. They have no money, and absolutely "can not" raise it. May be you have heard of such a state of affairs before. Perhaps it is talked and felt in your own community. Now just wait a bit. The opposition side to the Endeavorers declared that, even if they *were* defeated on a Thanksgiving dance, they would not be on a Christmas dance; and they made their preparations, and advertised tickets for sale at a dollar each, and then they went to work to carry out their project. By some hook or crook, the superintendent of the Sunday-school — or one of the Sunday-schools at least — was induced to help sell tickets; and, what do you think? They made their boast that they were going to sell a hundred tickets, and did sell that many. One hundred hard-earned dollars were taken from the poor people of that valley, and paid over for tickets to the dance; and then they crowded over the Christian element who thought at Thanksgiving time that spiritual things had triumphed over the enemy.

Dear friends, perhaps I have not told the story just right. It is near enough right, however, I think, to illustrate the point I wish to make. In almost any community people can scrape up money if it is wanted *badly* enough. Very likely, as a consequence the minister's salary is cut off; perhaps rents were not paid; may be the good wife and the children had to go without suitable clothing to get ready for

church and Sunday-school, in consequence of the money that was raised for that dance. May be the Christian people did not take just the right course at the time of the husking-bee. It is a little dangerous to shut right square down on things of this kind in a way that is liable to bring up bitter feeling and divide the people into opposite factions. If some of the good women had plead with those who wanted to have the dance to have it at some other time, and if the dancing-party had consented, it would have been very much better.

Do some of you inquire what harm the dance would have done the Endeavorers? Perhaps I am not equal to the task of answering this matter right here, even if it were advisable to take the space to do so. I may say, however, that, where the thing has been tried, it has been shown very conclusively that the more young people are interested in dances, the less they are interested in spiritual work. The young people's prayer-meeting can not be made to harmonize with a dance. One or the other will have to go to the wall. If the boys and girls would dance only with their *brothers* and *sisters* it would be a different thing. But they will not do this. They themselves will tell you there is no "fun" in it. I once suggested to a man who was going to walk a tight rope that he should stretch the rope only six feet from the ground. The people all laughed at me. Nobody would throw any money into his hat if he walked on a rope only six feet from the ground. It must be away up above the tops of the highest buildings if possible. They would not pay their money unless he would stretch a rope so high it would be *sure death* if he should fall. Now, you may think I greatly exaggerate when I say the matter of dances is something on the same line. People would not pay a dollar to go to a dance unless they were permitted to incur danger. The danger is not so much to young men and boys as it is to young *girls*. It is the latter class who are going to be crushed into a shapeless mass of deformity if they fall.

Oh, yes! I do know that boys and girls who refuse to dance or to play cards are, in many places, ostracised, as it were, from the rest of the young people. I do know of the hits and stabs they get when they decline. God knows I know of the crosses they have to bear in order that they may make their lives pure and clean. I have not spoken of fashionable wine-drinking; but these three seem to go together. May God help us to stem the tide. May he give grace and courage to the young people and to the young Christians who are nobly and heroically holding the fort. Oh how it rejoices my heart when I see a young man or young woman who has gone safely through the ordeal of the teens! for it is true, dear friends, that, almost without exception, a boy or girl who gets to be 20 or 25 will begin to lose the inclination for such things. Again and again have I heard such ones say, "Oh I am so glad that I held fast to the advice of my father and mother in regard to these matters! I can see it now, but I did not then." Dear young friend, you can easily test this matter of "questionable amusements" for yourself. If you are a professing Christian or a member of the Endeavor Society, suppose you try the experiment of joining in with those who take part in such amusements, and watch carefully to see what effect it has on your spirituality. After having attended the dance, can you read your Bible or kneel in prayer, or take part in the Endeavor Society, with the same zeal and enjoyment you did before? I think there can be but one decision in regard to this matter. There may be private dances in the home circle, among friends and

relatives, where there is but little to be objected to; but as you acquire skill in the exercise you will be constantly called upon to mix in more or less with the great outside world. I have watched the matter for almost fifty years, and my decision is like that of your own pastor and that of almost all good Christian people. A very dear friend of mine with whom I had had frequent conversations on this matter once came to me and said her conscience prompted her, in view of the talk we had had in regard to dancing, to make me a little confession. This confession was something like this:

"Mr. Root, after every dance that I have attended I have always had a feeling next morning that I was a little lower down than I had been the day before. Nobody told me so, but it was the verdict of my own conscience. Now, you know I sometimes go to prayer-meeting, and take part; but every morning after having attended the young people's prayer-meeting, especially after having taken part, somehow I feel just the opposite. In fact, I feel as if I had been lifted up just a little. The verdict of my own conscience is that I stand a little *nearer God* and a little further away from earth and earthly things."

This was not her own language exactly, but it was the purport of it as nearly as I can remember. Now, if God's Holy Spirit gives us all this sort of witness, we do not need to go to others for advice. We do not need to inquire what *others* do in regard to these matters; but we may seek the same counsel that my young friend did. We have it in the little text at the head of my talk to-day:

He that soweth to his flesh shall of the flesh reap corruption; but he that soweth to the Spirit shall of the Spirit reap life everlasting.

Please remember those beautiful words at the close—"shall reap life everlasting." Of course, we must bear burdens. Sometimes it seems pretty hard for the average boy or girl; but, my dear young friends, let me suggest to you that the great time of seed-sowing is while you are in the teens. About the time you are 20 or 25 you will begin to reap. Shall it be corruption or life everlasting? May God's Holy Spirit help you in the decision you make.



#### CAMPING OUT GENERALLY: ITS INFLUENCE ON HEALTH, ETC.

I have often heard of the appetite and resulting health that follow camping out in the open air; but I confess I never realized it till we had been out several days. Of course, I rode my wheel a great deal; and when just a little fatigued I would throw it on the canvas covering the bedding on the back part of the wagon, and then sit on it to keep it in place. This wheel-riding would of itself give me an appetite; but the sleeping in the open air is certainly a large factor in the matter. No room, no matter how open, can give exactly the same clear pure air that you get outside with only the stars overhead. My friends had brought such a bountiful supply of blankets that I never felt the least bit cold.

In stopping for dinner or for the night, the two important things are "wood" and "water." It seems very strange to eastern folks that either should be scarce; but on the desert, water is

found only at certain points, unless there has been rain recently; and wood is so scarce near these watering-places, because it has been so carefully scraped up, that we once or twice paid 25 cts. for a very small armful. While the men cared for the horses I usually built the fire and cooked the oatmeal, toasted the bread, "set the table," etc. Setting the table consisted in turning over the lid of the lunch-box and resting it on a water pail turned upside down. Mr. Carey made the coffee, and I never drank such delicious coffee before, and never expect to again. You may ask, "How about plain hot water you have lauded so much?" Well, coffee seems specially made for camping out; and if the water is the least bit alkaline the coffee disguises the taste. I did not use sugar, but did use concentrated milk. Mr. Elvey cooked the quails and beefsteak. The most nourishing and delicious steak I ever ate we bought at Antelope, 2½ lbs. for 15 cts. The mountains of Arizona can produce beefsteak as cheaply as or cheaper than any other country in the world; and one who knows how can cook it over a camp-fire so as to be nicer than any restaurant or hotel cook ever thought of doing. I am not going to claim that the mountain and desert air did not have something to do with it. I gained 11 lbs. in weight during the two weeks' trip, as nearly as I can make out, and now weigh as much, perhaps, as I ever did in my life.

Just a word more about the beef and cattle. Where there is plenty of rain, cattle can be grown on the mountains, I am told, at a cost not exceeding one dollar per head. When these cattle are of proper age they are driven down to Salt River Valley, where they quickly become fat on the wonderful alfalfa. Imagine a field of forty acres in January, as green as a clover-field in June, and the plant almost knee-high. Stock enough is turned on to eat it down close to the ground, then they are removed to another field, water is turned on, and in a few weeks the field is green with another crop. So valuable is this alfalfa with its many crops in a season, that some fruit-ranches are being cleared to make room for alfalfa, because the latter pays better than the fruit.

Let us go back to arid plains and mountains again. During the whole of 1895, more rain fell than for many years, and feed is now so plentiful that there is not stock enough to consume it all. Previous to 1895 there were two or three years of deficient rainfall, and thousands of cattle starved, and some of the owners became bankrupt. Go where you will, the bleaching skeletons of starved cattle are found. All along the roadside they are common. A dead cow by the wayside is too common to occasion remark, and no care is taken to bury the carcass; for in this arid clime it just dries up, emitting very little or no smell at all. The bones are not collected, as they are in Texas and other places, for the reason that the cost of shipping is more than their value at present. Around "Skull Valley," bones are so plentiful as to suggest its name.

Alfalfa is made into hay in the spring and summer—seldom in winter, on account of difficulty in curing properly. It is pressed into bales of about 100 lbs. each, and these are retailed in Salt River Valley at 25 cts.; but after we were out two days in the desert (at Antelope) the price was \$1.25 per bale. You see they count it worth a dollar to haul 100 lbs. two days. I am told that small farmers who find a spring in some canyon, so as to irrigate a small field in these localities where hay is so high, get to be well to do in raising alfalfa alone. To save hauling so much weight and bulk we tried grain instead of alfalfa hay; but our horses

greatly preferred the hay, and seemed to work better on it; in fact, we found it hard to get them to eat any kind of grain if they could get their favorite alfalfa hay.

#### MONTEZUMA'S WELL.

Within twelve or fifteen miles of Camp Verde, off toward Flagstaff, is the celebrated Montezuma's Well. I started ahead of the team, on my wheel. When I got pretty near the locality, I wanted to make some inquiries. I saw a lot of little girls playing near a schoolhouse. As it was a little off the road I turned my wheel in that direction, proposing to ride up and make inquiries. As soon as they saw that strange-looking craft making toward the group at pretty good speed, they with one accord put for the open door of the schoolhouse, with a speed equal to if not greater than what I could make on the wheel. One of the older ones, however, ventured to give me the desired information. A little later the team came near enough so that Bro. Elvey informed me that, if I would go to the top of the hill yonder, plainly in sight, I could find Montezuma's Well.

The team passed on to the place where we were to stop over night, near by. I followed the trail with my wheel until I was nearly at the top of the hill; then I proceeded to go up the rest of the way on foot. Was it the exercise of riding or the excitement of the moment in thinking that I was at last so near this celebrated freak of nature? And is it really possible that right on top of this hill here before me I am to find this far-famed well of Montezuma? I had almost reached the summit, and began to think there was some mistake, when, lo! at my very feet yawned a huge rocky cavern or drop. From where I stood, straight down, it was nearly a hundred feet to the water, and the well is almost circular. I believe the distance is about 200 feet across. I threw a stone with all my might, but it came a good way short of reaching the center of the pool. Sure enough, as I had been told, air-bubbles kept rising continuously where the stone went down. The report is, that ropes tied together have been let down 500 feet without striking any bottom. By leaning over the edge of the precipice I saw, perhaps a third of the way down, the cliff dwellings that those queer people of olden time built even into the sides of this well. It made me think of the swallows' nests under the eaves of a barn. It was so near night that I did not undertake to explore the dwellings. In fact, it is a dizzy piece of business any way, with that bottomless pit of water to catch you in case you should fall. On the opposite side from where I stood, the rocky wall is a little more broken. In fact, there is a trail made by the feet of many visitors where they get down. At the bottom of this trail is a little piece of ground not covered by water; and a tree and some bushes of some size grow here. Right back of the tree there is a cave, or, rather, two of them. One of these is occupied by more cliff dwellings. In fact, they go back into the rock a considerable distance. The other, the right-hand branch, leads down through many crooks and turns into a place where you may hear running water. This is the water that constantly overflows from the well, and passes off through the rocky sides of the hill until it finds an outlet in Beaver Creek; and some enterprising fruit-grower or farmer has caught the stream, and carries it away in an irrigating-canal to his ranch. The volume of water that goes out is perhaps large enough to fill a good-sized stovepipe. By looking carefully around the margin of the bottom of the well you will find a place where the waters go gurgling down through the broken rock.

Whence came this batch of curiosities? What made this well in the top of the hill? Friend Elvey explains it by calling it the crater of an extinct volcano. At some former period, he thinks, the volcano blew out this hole. The hill surrounding it is made up of the matter thrown out, and water found its way in, filling up the crater, and overflowing till it found an outlet through the side of the hill into Beaver Creek. Mr. Robert Phinney, who lives nearby, has another explanation. He thinks the underlying rock is something more or less soluble in water, and that the spring of water coming up through has dissolved the rock and carried it away. As a proof of this, the water from the well even now holds a large quantity of minerals in solution. The deposit on sticks and stones, something like petrefaction, shows this. As the water is moderately warm at all seasons of the year, where it comes out into Beaver Creek on a frosty morning it sends up quite a little steam or vapor; and a beautiful growth of "maiden-hair" ferns follows the path of this warm spring water from its exit out of the cliff down to Beaver Creek.

By the time I had finished my examinations a man came galloping up to the summit of the hill, on horseback. It would surprise people here in the East to see how carelessly and recklessly people ride on horseback along the mountain canyons. The trail down the hill was so steep that I sprang from my wheel; but while we were talking, the man turned about in his saddle; and while he was looking right back toward me, his horse came to a series of rocky precipices, some of them two or three feet straight down among the jagged rocks. Right down this rocky pathway the horse went with a sort of lop, and his rider had his head turned toward me, and did not even look to see where his horse was going. I stood still in open-mouthed astonishment. The horse went clear to the bottom safely, and then loped off through Beaver Creek and up the hill on the other side. I do not suppose that one of the horses here in the East could have been coaxed down that path among those jagged rocks, by any hook or crook; and yet this horse plunged down boldly without so much as hardly slackening his speed. So much for the matter of education.

About half a mile from the well I found the home of Robert Phinney. As a rule, through the desert mountains and all around Camp Verde the houses are very modest and humble. In fact, it is generally agreed that such expensive homes as we have here in the East are not needed; for snow is seldom seen, and the only frost or freezing is during the night. During the coldest weather it sometimes freezes so as to give the children a little slide early in the morning; but when the sun gets away up high in the middle of the day, it is almost always comfortably warm if you get out in the sun. This is why they put so little expense on their dwellings. But Mr. Phinney's home presents a vivid contrast, and I was a little surprised to see a beautiful house made of hewn stone with contrasting colors—a house that we would call pretty in any town or city in our land. I began to make some inquiries, and was told something like this:

"Oh! Mr. Phinney, he married the schoolma'am, and she made a picture of the house before it was ever built. She's an awful good schoolma'am, and the people like her so well they could not let her go, and so she teaches school now, even if she is married."

Now, I have not time to tell you *all* about the pretty little home belonging to Mr. and Mrs. Phinney; but I want to say that the inside is fully in keeping with the outside. Books,

papers, periodicals, and all the appliances of modern comfort and luxury, are found in that little home. In fact, the furniture is mostly made up of gems of modern date. When I first came in I noticed a beautiful rattan chair with three links of a chain surmounting the back. Friend Elvey pretty soon began to joke with the owner about being an Odd Fellow, even if he was away back in the hills. At this the bright and vivacious mistress of the home looked up inquiringly, and replied:

"Why, my husband is not an Odd Fellow, neither is he a member of any secret society." And then she added, mischievously, "In fact, it was in the bargain before we were married, that, instead of going to lodges and society meetings, he should spend his evenings at home with me."

Now, Mr. P. is a very quiet man. He is every inch a gentleman, and always looks smiling and good-natured, although he does not talk very much. He did not make any reply, only to smile a little *more* good-naturedly at this explanation from his wife. I wish that Mrs. Root, when she gets thus far in reading my story, would please skip a dozen lines or so; and while she is skipping ahead I want to say to the readers of GLEANINGS, a little aside, that I am not a bit surprised that Mr. Phinney decided in his own mind he would rather spend his evenings with this bright, intelligent little schoolma'am than even to take a *look* toward all that the secret societies and lodges in this whole wide world can offer by way of contrast. If he did not so decide, I am sure I should have done so if I had been in his place. Out in the country, I believe that, as a general rule, the husband *does* usually spend his evenings with his wife and children. If there are no children, then there is a still better reason why he should stay at home with the wife, to keep her company.

It is just being discovered in this neighborhood that apples and other fruits grow to wonderful perfection; and these two friends have already put out an orchard of thrifty young apple-trees; and one evening was spent quite profitably and pleasantly in discussing the different varieties of apples; and I was very glad indeed to find that my recent enthusiasm in that direction had given me some knowledge of pomology. Right close by Mr. Phinney's apple-orchard are some wonderful soda springs. The water comes bubbling and boiling up through a bed of white sand. I will tell you about them in our next issue.

#### THE SUFFERING ARMENIANS.

The National Armenian Relief Committee recently forwarded to Turkey \$35,000. They have just received a cable message from the International Committee at Constantinople, of which the British Ambassador is Chairman, acknowledging the remittance, and stating that the funds in hand are entirely inadequate to meet the awful suffering and destitution, and that careful investigation has shown that not less than 40,000 children have been made orphans by the late massacres. These "wards of Christendom" can be easily saved from starvation or debasing enslavement in Moslem homes, and can be cared for at the rate of a dollar a month; but thousands will perish before spring unless generous gifts are sent at once to Brown Bros. & Co., 59 Wall St., New York, who are the authorized treasurers.

SPENCER TRASK, Chairman,  
FRED D. GREENE, Secretary.

New York, Feb. 2, 1897.

We clip the above from a communication just received. I may add here that a sum of money sent from Medina a few days ago was reported to be in the hands of missionaries in Armenia within 48 hours, the arrangements by

cable enabling us to reach the sufferers thus quickly. Now, there is one hopeful feature to me in the work that is going on. With the activity at present being displayed in relieving the sufferers it does not seem to me that the Turks will dare to go into any more slaughter. If they do, let them beware.

## Special Notices in the Line of Gardening, etc.

By A. I. Root.

### REDUCED PRICES ON OUR RURAL BOOKS.

Please read over our book list in this and the next issue, and note the great reductions in the price of many of the standard books.

### OUR WHITE PLUME CELERY SEED.

For many years past we have been getting our celery seed from one particular house. Their prices are higher, consequently ours are rather higher; in fact, we have had seed offered us by a good many seed-growers at less than half what we now pay; but we were afraid to risk any thing cheaper. Below is a sample of the letters we get in regard to it:

Mr. Root.—The White Plume celery seed that I got from you last season produced the best lot of celery ever grown in this section. Please send me by return mail as follows:

Richfield Springs, N. Y., Feb. 7. L. P. SEATON, Florist.

### OUR JERSEY WAKEFIELD CABBAGE SEED.

For many years past, all of our Wakefield seed has come from H. A. March, as our friends may know; and it has been extra select stock seed. Aside from the results obtained on our own ground, year after year, we have had most excellent reports from north, south, east, and west. Last summer we had cabbage from this seed—hard solid heads weighing from 8 to 10 lbs., and almost every plant made a nice head of cabbage. Seed was started in the greenhouse, in the middle of February, planted out in cold-frames in March, and then set out in the field in April. In this way the plants were hardened off so as to be nearly if not entirely equivalent to cold-frame plants. Now is the time to start your seeds under glass. See prices elsewhere.

### VEGETABLES UNDER GLASS.

In our issue for Dec. 1, page 871, I reviewed a little book entitled "Vegetable Forcing." I said that, although the price was \$1.00, the book was hardly worth 25 cts. Just now, however, we have got a little book from that veteran seedsman, Henry A. Dreer, entitled, "Vegetables under Glass," and it is really a little gem. It really does my heart good to find somethin' on the matter of gardening, especially gardening under glass, from those who have been years in the business, like Henderson, Landreth, or Dreer. The book is profusely illustrated, and the pictures alone are worth the price. The paper and print are beautiful. One feels sorry when he has read it all through, to think there is no more of it. Last, but not least, this little book of over 100 pages is mailed for only 25 cts. We should be glad to furnish it at this price to any who may want it. I may remark that Dreer himself has a single greenhouse covering an entire acre.

### HUBBARD SQUASHES.

A man came in last week, saying he had about 100 nice Hubbard squashes, and wanted to know what we would give for them. I paid him 1½ cts. per lb. for 25 of the squashes. We put them on the wagon, and the greater part of them were sold in about two days. We ought to have bought all he had. When I asked him how he managed to keep them until the middle of February he said it was a very easy matter when one has learned how. The squashes must be picked before they are frosted in the least. They must be handled like eggs, and put in a dry room upstairs, where it will not freeze. It will not do to put them in the cellar. Cellars are too damp, and mostly too warm. Keep them in a dry cool room as near freezing as you can, and yet not have them freeze. Now, friends, we have had this same state of affairs winter after winter. Hubbard squashes are quoted in Cleveland at 2 cts. per lb., or \$40.00 a ton, and you could make lots of money

if you got only \$5.00 a ton. If you want to try it, we have an extra nice lot of seed at a very low price, especially if wanted in quantity. See price of seeds for 1897, on another page.

### GOOD ONIONS ARE WORTH A DOLLAR A BUSHEL.

This is another thing to rejoice the heart of the farmer and gardener. One of the largest onion firms in the United States is here in Medina Co. In fact, their crop last year was so great that it received a kindly recognition in the Agricultural Reports at Washington. Well, after much care and pains they brought their whole crop through the terrible blizzard of the last week of January. In a pleasant letter from one of the firm a few days ago he remarked that they were getting a dollar a bushel for their large fine Red Wethersfields; and if you will consult the market reports you will find that onions are from \$2.50 to \$3.50 a barrel in all our large cities. Good! Now, friends, there is going to be a scarcity until the new crop is gathered. Perhaps there never was a better opening for onions started under glass. Fix up your greenhouses; get your hot-beds and cold-frames going, and get in some onion seeds straightway. See the low prices we quote you in this issue.

### SEED POTATOES AS PREMIUMS FOR SUBSCRIBING TO GLEANINGS.

Now it is near to planting-time, please remember that everybody who sends us \$1.00 for GLEANINGS, past, present, or future, may have, as a premium, 1 lb. of Thoroughbred potatoes for every dollar he sends us, or 2 lbs. of any other kind in the list. Still further, if any present subscriber will get us a new name, that is, will get GLEANINGS going into some neighborhood where it is not now going, we will give him a peck of Thoroughbreds or ½ bushel of any of the other kinds. Of course, you must pay the shipping charges. If any of you like small potatoes for planting, you may have just twice the quantity of seconds. See revised prices below:

NAME	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
Varieties are in order as regards time of maturing; earliest first, next earliest, second, and so on.							
White Bliss Triumph ....	15	8	35	8	20	8	1 00
E. Thoro'bred, Maule's*	30	75	60	35	1 50	2 25	5 00
Early Ohio .....	15	35	25	40	75	2 00	4 00
Early Northern .....	12	20	35	40	60	1 50	2 50
Breeder's Extra Early....	12	35	25	40	75	2 00	4 00
Freeman .....	15	35	20	30	60	1 50	2 50
New Queen .....	12	20	30	35	60	1 25	2 25
Monroe Seedling .....	12	20	30	35	60	1 25	2 25
Rural New-Yorker No. 2. ....	12	20	30	35	60	1 25	2 25
Sir William .....	15	35	20	30	60	1 50	2 50
Carmen No. 1 .....	12	20	25	35	60	1 50	2 50
Carmen No. 3 .....	15	35	20	25	40	75	2 00
Koshkonong .....	15	35	25	40	75	2 00	4 00
Manum's Enormous....	15	35	20	35	60	1 00	2 50
New Craig .....	15	35	20	35	60	1 00	2 50

\* 50 strong eyes, by mail, postpaid, \$1.00.

We can furnish seconds of the Thoroughbred, Burpee, Freeman, New Queen, Sir William, Carmen No. 1, and New Craig, at half the above prices. All the others are sold out. Please note that this low price on seconds does not apply to potatoes sent by mail postpaid.

### THE NEW QUEEN AS AN EARLY POTATO.

In our experiments last year the New Queen gave good early potatoes almost if not quite as soon as any of the extra earlies. The quality was also, and is now, next to the Freeman. Furthermore, it is less liable to scale than any other potato known, on our Medina clay soil. Last, but not least, it gave us the enormous crop of 375 bushels per acre, right through a pretty good-sized field. Now let me call your attention to the low price at which we offer this splendid early potato—only \$1.25 a barrel; and if you care to plant medium-sized and small potatoes, we offer some extra nice seconds at only 63 cts. per barrel. At these prices the New Queen is perhaps as good a potato for table use as you can find. Our low price is not because they are in any respect behind the others, but because we have almost a thousand bushels to dispose of. Please notice in the table our drop in the prices of Thoroughbred, Burpee's Extra Early, Freeman, Sir William, and Carmen No. 3.